AIR CONDITIONING & REFRIGERATION NEWS
The Newspaper of the Industry
Subscription Price, $6 Per Year — Vol. 83, No. 9, Serial No. 1,510 — March 3, 1958
Issued every Monday at 450 West Fort St., Detroit 26, Michigan
Established 1926
Member, Associated Business Publications — Member, Audit Bureau of Circulations
Reentered as second class matter October 3, 1936, at the post office at Detroit, Mich., under the Act of March 3, 1879.
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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Happy Names Dept.
New Refrigeration Application
Three C's of Business Management
Happy Spit-In-the-Face
Modern-Day Aesop

Stories of the Week

"I have joined the YWCA," said this man.

"But that's for girls," protested an old friend.

"Yeah. So am I."

Youngster wrote to the admission office of an old university, requesting "catalogs, stickers, and penance."

He received a catalog and stickers, but the dean of admissions suggested:

"For penance, may I suggest a few hours a day with a good dictionary?"

Happy Names Dept.

Television supervisor for the Leo Burnett advertising agency is Nelson Winkless.

Public relations chief of Greer Hydraulics is Charlie Neighbors.

New Refrigeration Application

Oriental science has come up with a boon not only for schizophrenics—but to salesmen, and all who entertain customers (or anybody) far into the night, to wit:

A Japanese surgeon has developed a refrigeration-compressor process for cooling the brain—for surgery, initially.

For anyone who has held an icepack atop his throbbing skull, feverently wishing the blood would cease pulsating at such a rapid clip—and that a certain housefly would quit stomping his feet—this technique also possibly may be the answer to a sinner's prayer.

Dr. Kazumi Taguchi's method of brain cooling might replace anesthesia for delicate surgery, it is predicted.

Or "bloody Marys" for salesmen on the morning after.

Three C's of Business Management

Business automation never will eliminate the need for intelligent men, according to Henning W. Prentis, Jr., Armstrong Cork President. Automation will erase the repetitive, monotonous functions of recording, transcribing, computing, and summarizing; but in doing so it will create demands for *greater*

(Concluded on Page 8, Col. 1)

Claim Faulty Heating Makes Floors Buckle

By Robert E. Lacey

DETROIT — A full-scale investigation has begun in nearby Taylor Township by the Michigan Corporation and Securities Commission on owners' complaints that 42 one-year-old homes "are falling apart"; the focal point in the complaints being the heating system which residents charge is a "fire hazard and overheats to the point where floors are buckling and walls are sagging."

Riled up because they maintain heating bills are running up to $30 a month, kitchen and bedroom walls are leaning at "threatening" angles, warped doors won't close, and nails are popping out of ceilings, residents place most of the blame on alleged troubles with the heating system.

They claim the furnace pours

(Concluded on Page 7, Col. 5)

Warm Air Group Asks Emphasis on Air Movement

INDIANAPOLIS—An appeal to warm air heating manufacturers to "stress the advantages of complete comfort that can only be gained by proper air movement and air circulation" was made in a resolution passed by the Sheet Metal & Warm Air Heating Contractors Association of Indiana at its recent annual meeting.

The following resolution was approved during the course of the convention:

"Whereas: The wet heat and electrical heat manufacturers, suppliers, and contractors are advocating and installing base board and panel heating without regard to air movement, circulation, and humidity:

"Therefore: Be it resolved that furnace manufacturers in their advertising program stress the advantages of complete comfort that can only be gained by

(Concluded on Page 4, Col. 5)

Packaged Cooling Units 'Show Cased' March 10

Specifications of all 1958 models of all makes of packaged air conditioners that have been introduced thus far will be published in the March 10 issue of Air Conditioning & Refrigeration News.

This Air Conditioning "Show Case" issue will also include much other useful information on the promotion, sale, and application of air conditioning equipment.

A limited number of extra copies of the March 10 issue will be available on a first come, first served basis to those who order them. Prices will be 1-9 copies ($1 each), 10-49 copies ($.75 each) 50 or more copies ($.50 each). Reserve your copies by writing to Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

At Westinghouse

Campbell Heads Conditioning, Home Heating

PITTSBURGH — Ronald N. Campbell, formerly president of Bryant Mfg. Co., a division of Carrier Corp., has been elected a vice president of Westinghouse Electric Corp. and president of its wholly-owned subsidiary, the C. A. Olsen Mfg. Co., Elyria, Ohio, it was announced recently.

R. N. Campbell

Campbell joined Westinghouse as the company moved to integrate and strengthen its air conditioning and home heating activities. The Air Conditioning Div., under the direction of Bruce D. Henderson, vice president, will report to Campbell, as well as the Olsen company. The Air Conditioning Div. manufacturing facilities are located at Staunton, Va., and the Olsen plants are at Elyria and Medina, Ohio.

(Concluded on Page 25, Col. 1)

Low Temp, Minimum Loading Delay Urged For Frozen Foods

WASHINGTON, D. C.— Recommendations for handling frozen foods were recently outlined for retailers, distributors, and consumers by the American Home Economics Association.

This 25,000-member group emphasized in its bulletin the "extreme importance" of maintaining the lowest temperature practical during transportation, storage, display, and home care for frozen foods. Specific recommendations were made to each group of handlers.

Distributors should, AHEA said, move frozen foods from one freezer atmosphere to another with all possible speed and at as near optimum temperature as possible.

Retailers should: 1) move frozen foods from delivery truck into freezer storage with no delay at room temperatures; 2) operate frozen food cabinets at proper temperatures (near 0° F.); 3) avoid filling frozen food cabinets above the safe-fill level; 4) display easily interpreted temperature indicators

(Concluded on Page 6, Col. 1)

5 Years Later

92% of All Graduate California Apprentices Found Still at Same Trade

SAN FRANCISCO — "What has happened to the many thousands of apprentices who have 'come out of their time' under California Apprenticeship Standards?"

Charles F. Hanna felt the Div. of Apprenticeship Standards ought to have the answer. As chief he made provision for a survey of former apprentices. The division wanted to check the answer against its own efforts and policies.

The apprentices who completed apprenticeship programs in the year 1950 and received California Trade Certificates were those of whom requests for information were sent. Over 1,200 responded.

Data furnished was coded and recorded on IBM cards with the help of the Div. of Labor Statistics and Research.

As of the year 1955 the survey shows 92% of the 1950 class are still in the trade in which they served their apprenticeship.

Another 4% are working in related trades.

Over 30% are now supervisors, and over 13% are in busi-

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Report Gains In Electricity As Heat Source

Resistance Heating, Heat Pump To Share In National Upsurge

DETROIT — "The great advances made in the last five years, the improvement in technology, and the lessening spread between the cost of electricity and other fuels all point to a tremendous upsurge in the use of electricity for heat."

This was the theme of the Electric Space Heating Symposium attended by over 200 here recently. Covering both heat pumps and resistance heating, the symposium attracted utility company representatives, architects, contractors, and engineers from the South and from both the East and West Coasts. Sponsored by several manufacturing companies, the symposium is expected to set a pattern for similar meetings to be held throughout the country.

"While electric space heating began in the South, applications have definitely crossed the Mason-Dixon Line," said C. R. Landrigan, executive vice president of Detroit Edison Co. Other speakers pointed out there are now 23,000 heat pump installations, and over 500,000 homes have some form of electric heating.

Discussing heat pumps for year-round comfort conditioning, Paul O'Neil, manager of utility contacts, Weathertron Dept., General Electric Co., reviewed their proved application in small and large buildings—radio stations, supermarkets, apartment houses, motels, schools, churches, factories, and government buildings.

"The inherent flexibility of multi-unit heat pump conditioning, together with a definitely lower first cost when consider-

(Concluded on Page 25, Col. 3)

Benny Boosts Air Conditioning With Smog Skit

Air conditioning got a "boost" as an answer to smog conditions in southern California (and elsewhere) in a skit that formed part of the Jack Benny TV show on Sunday, Feb. 23.

While Benny was telling a joke about the smog being so thick it broke the fall and saved the life of a man who fell from the sixteenth floor of a building in Los Angeles, he was interrupted by a supposed representative of the Los Angeles Chamber of Commerce. However, the Los Angeles booster got to coughing so badly he finally shouted:

"Shut the windows and turn on the air conditioning."

Tennessee Officals View Trane's Central Residential Air Conditioner

AT A special preview in La Crosse, Wis., the new Trane Co. central residential air conditioner was unofficially unveiled for prominent Tennessee officials. To be built in Trane's new Clarksville, Tenn. plant, those checking the unit are: Frank G. Clement, governor of Tennessee at left; D. C. Minard, Trane president; Paul McGregor, mayor of Clarksville; and William Baird, chairman of the Tennessee Agricultural and Industrial Commission. Official introduction will be several weeks hence.

SMI Conclave To Show 'How To Meet Recession' In Chicago Mar. 25-26

CHICAGO — How individual supermarket operators are meeting the problems of the current recession will be the topic of a panel discussion and open forum at the spring meeting of General Management Div., Super Market Institute, March 25-26, in the Hotels Ambassador here.

William T. Snaith, president of Raymond Loewy Associates, will warn supermarket executives of problems they face because of fundamental changes in all retailing. These dangers are created by new type of retail establishments which require the supermarket operator to re-examine his merchandising and operating policies, particularly when adding new stores, Snaith will point out.

Steamfitters Strike—Electrical Supervisors Won't Join Union

SACRAMENTO, Calif.—Business Agent Wm. M. Francis of United Association Local 447 here attempted to organize five electrical installation supervisors employed by Minneapolis-Honeywell's Sacramento district office.

The five electrical supervisors declined to accept the proffered union affiliation.

Francis then called a strike of six steamfitters employed by Minneapolis-Honeywell's Sacramento district office. The steamfitters have not returned to work but no pickets have been posted.

Francis continues to declare he will not let the steamfitters go back to work until M-H takes all tools away from the electrical installation supervisors, and gives him jurisdiction over all service work, electrical and industrial.

To get an electrical job installed M-H installation supervisors subcontract it to the electrician on the job. It is then their supervisory duty to check the installation to see that it will do the work it has been designed for. They do this checking with instruments, making differential adjustments and compensating adjustments.

Musham Is Imperial President, Treasurer

CHICAGO—Election of W. C. Musham as president and treasurer has been announced by The Imperial Brass Mfg. Co.

W. C. Musham

Musham succeeds F. C. Shafer, who remains chairman of the board of directors.

F. C. Shafer

Musham previously was first vice president, a position which he has held for the past nine years. He is the company's fourth president since its founding 53 years ago.

Imperial recently moved to its new plant in Niles, Ill. The company manufactures tube fittings, valves, and tubing tools for instrumentation, hydraulics, pneumatic, plumbing, automotive, refrigeration, and general industrial applications.

NCRSA Announces 11 New Members

PHILADELPHIA — Eleven new members have been announced by National Commercial Refrigerator Sales Association.

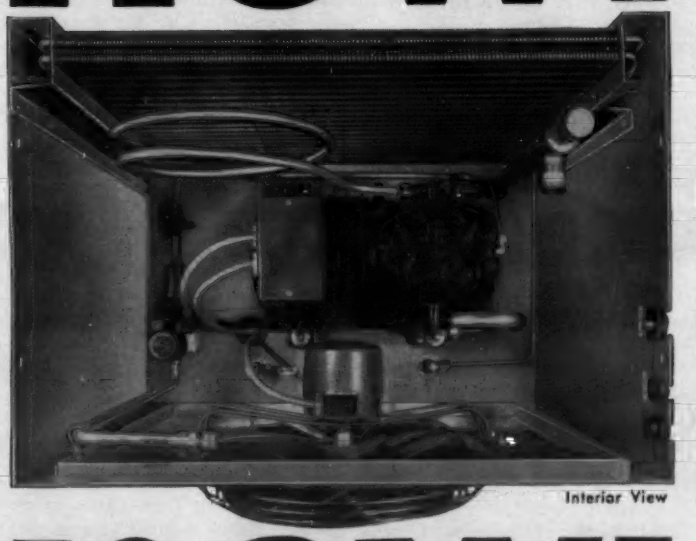
Distributors are: Biltrite Fixture Co., Inc., Bronx, N. Y.; Carlson & Goulette Heating & Refrigeration Co., Iron Mountain, Mich.; Commercial Equipment Co., Inc., Birmingham, Ala.; Herberts Refrigeration, Sparks, Nev.; Hobart Sales & Service, La Crosse, Wis.; Modern Refrigeration Service, Billings, Mont.; Smylie Bros. Refrigeration, Inc., Cleveland; Star Electric Services, Ltd., Moncton, N. B., Can.; Stout & English Store Fixtures, Inc., Denver; Storey Electric, Charlottetown, P.E.I., Can.; and Clark Waters Refrigeration Co., Pocatello, Idaho.

Rudy Wolfe Named

EVANSVILLE, Ind. — Appointment of Rudy A. Wolfe as regional manager for the Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., has been announced by D. J. Wood, general sales manager.

Wolfe will cover Arkansas, Mississippi, and Louisiana, with headquarters in New Orleans.

new!



Interior View

new!

new!

KRAMER

THERMOBANK COMPRESSOR

FACTORY PACKAGED at LOW COST!

Kramer's new THERMOBANK COMPRESSOR overcomes the problems and uncertainties in field assembly of low temperature refrigeration systems. It's the only factory-assembled-and-tested automatic defrost system and includes a hermetic compressor, THERMOBANK re-evaporator and all controls. It arrives on the job ready to operate. Only simple connection to the Kramer evaporator is required and nearly all adjustments are eliminated. THERMOBANK COMPRESSOR uses an extra large air-cooled condenser and a high efficiency low temperature compressor—possible only with THERMOBANK—for maximum capacity at lowest cost. Tamper-proof aluminum case provides easy access to all components and maximum installation adaptability in any unconfined area. Units available on request for outdoor installation are designed for automatic trouble-free operation for any outside temperature.

WRITE FOR BULLETIN TC-406

KRAMER TRENTON CO. • Trenton 5, N.J.

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

For more information about products advertised on this page use Information Center, page 20.

IN AIR CONDITIONING . . . THE SWITCH IS TO WESTINGHOUSE!

WELCOME

We welcome the scores of distributors who have switched to Westinghouse. You are a part of a very select group of capable businessmen.

Behind your switch lie many reasons. But each of you has this in common: the desire and determination to make central air conditioning a profitable, thriving business. This you have shown! This you are proving!

This is a reflection of the Westinghouse sales philosophy—to seek out the professional, aggressive men in this industry. And then to fully support them with the vital resources of this corporation. This is what makes the Westinghouse franchise the *franchise with the future!*

IN AIR CONDITIONING . . . THE SWITCH IS TO WESTINGHOUSE!

THANKS

Thank you for the confidence you have shown by switching to Westinghouse. Your confidence will be justified!

Westinghouse will do all in its power to make doing business in air conditioning your wisest investment. It will be done by providing *you* with realistic, sales-building programs. Programs that fit *your* individual sales needs. Programs that *you* can confidently convert into sales profits.

IN AIR CONDITIONING . . . THE SWITCH IS TO WESTINGHOUSE!

YOU CAN BE SURE...IF IT'S

Westinghouse

AIR CONDITIONING DIVISION
WESTINGHOUSE ELECTRIC CORPORATION
STAUNTON, VIRGINIA

You who have switched are a part of a well-equipped, aggressive sales team. It's a team that takes back seat to no one in spirit. In vitality. In ability. In knowing how to make a profit.

It's growing. And those who have joined it are growing profitable!

J-80559

IN AIR CONDITIONING . . . THE SWITCH IS TO WESTINGHOUSE!

For more information about products advertised on this page use Information Center, page 20.

Calif. Sets Hearings on Heating, Electrical Codes for Trailers

SAN FRANCISCO — Equipment for heating, and the use of electricity in trailer coach and mobile homes will be subject to standards ready for adoption but subject to public hearing Monday morning, March 3, in California State building, Los Angeles.

Authorities in heating, electrical, and plumbing equipment have worked with representatives of Trailer Coach Association of Los Angeles and Mobile Homes Mfg. Association of Chicago for seven months to prepare the proposed code for trailer coach manufacturers.

After July 1, 1958, all trailer coaches manufactured for sale in California by its 500 dealers must meet the requirements of the Div. of Housing, in order to comply with a 1957 statute.

M. J. McDonough, chief of the Div. of Housing, anticipates California's regulations will lead to a national construction standard.

Regulations for heating equipment follow applicable standards of American Society of Heating & Air-Conditioning Engineers, American Gas Association, American Standards Association, National Board of Fire Underwriters, Underwriters Laboratories, Inc., National Fire Protective Association, Commercial Standards, and Standard Gas Code, it was stated by McDonough.

Regulations for electrical equipment are said to be reasonably consistent with applicable provisions of the National Electrical Code, and Underwriters Laboratories, Inc.

Fire Slows AAF Only 2½ Weeks

LOUISVILLE, Ky.—Just two weeks and three days after an early morning fire destroyed American Air Filter Co.'s Plant 2, the firm shipped its first orders from a relocated plant site.

Two truckloads of parts and small unit filters were shipped recently from the new plant 2, a plant at 2515 South Fourth St., formerly occupied by Reynolds Metals Co., and Graco Enterprises, steel warehousing.

About 25 employes are on the job at the present time, about half the number normally employed at the plant. Supplies and equipment are arriving daily and normal production is expected to be resumed within 30 days, according to E. B. English, manufacturing manager for AAF.

Store Modernizing Is Theme of N. Y. Show

NEW YORK CITY—National Store Modernization Show, sponsored by Store Modernization Institute and produced by Exposition Management Corp., will be held June 23-26 in the Coliseum here.

The show is designed to cover every facet of store modernization, shopping center, and new store construction and maintenance. The producer expects executives representing 150,000 retail outlets to attend.

Over 100 firms have reserved space for exhibits. These will include: store modernization; new building; office and accounting equipment; material handling and warehouse equipment; vending machines; and packaging machinery.

Dr. T. D. Ellsworth, director of research and publications, and Dr. Hans E. Krusa, professor of retailing and supervisor of cooperative training in New York university's school of retailing, will conduct seminars, clinics, and forums, with experts offering advice on modernization, lighting, layout, merchandise handling and display, accounting, and transportation.

Buffalo ASRE To Hear About 'Comfort Cooling Control'

BUFFALO — "Comfort Cooling Control" is the topic for discussion at the March 6 meeting of the Buffalo Section, American Society of Refrigerating Engineers, which will be held at the Hotel Sheraton, 715 Delaware Ave.

Warren Scott, field engineer for Minneapolis-Honeywell Regulator Co., Cleveland, will be guest speaker and will report the results of recent field tests of refrigeration and air conditioning equipment. Nomination and election of officers for the 1958-59 season will be held following the dinner.

Air Movement--

(Concluded from Page 1, Col. 2)

proper air movement and air circulation involving needs for humidity, fresh air, and future air conditioning."

It was also proposed at the convention, that a "Suggested Model Building Code-Ordinance Combination" which has the approval of the directors of the association, be presented to city officials, Chamber of Commerce groups, and other civic groups in major Indiana cities. The scope of the code is indicated in the following preamble to the proposed measure:

PROPOSITION

"An Ordinance Establishing and Regulating Minimum Standards for the erection, construction, enlargement, alteration, repair, electricity, plumbing, heating, ventilation, air conditioning, sheet metal work, and roofing, in and for all Public and Private Buildings or Structures in 1st, 2nd, 3rd, and 4th class cities in Indiana; creation of a Building Commissioner, provisions for the issuance of licenses, permits and inspections, and the collections of fees therefor; creation of the Building Code Examining Board; and providing for penalties for violation thereof.

"**Purpose:** The purpose of this code and the regulations of this Ordinance are to provide minimum standards to safe-guard life, limb, health, property, and the public welfare.

COVERAGE

"**Scope:** The provisions of this Ordinance shall govern the construction of buildings and the installation of equipment therein, and shall further govern the location, relocation, design, materials, alterations, addition, demolition, repair, maintenance, service, and use of any building or construction, or installation and use of any equipment, plumbing, sewers, boiler, hot water supply heater, electrical work, warm air heating system, air conditioning system, ventilation system, blower system, incinerator, sheet metal work or roofing, or for all public and private buildings, or wherever such work is performed within 1st, 2nd, 3rd, and 4th class cities in Indiana."

OPPORTUNITY FOR SALES: Number 3 in a Series

The Wholesaler and

SATISFIED CUSTOMERS

Keeping customers happy—and coming back to you because they like the service you provide—is a cinch when you sell products designed to help them do a better job faster and easier!

Such a product is Wolverine Roll-O-Tube.® It provides many helpful services for users of copper refrigeration tube.

Most important, of course, is Roll-O-Tube's use as a reel. To obtain exactly the length of tube you require all the user has to do is fasten the tube at one end—and reel the carton back. Unused tube can be left in the carton—clean, dry and protected from damage until needed again.

The new Wolverine tube seal—a plastic plug that gives positive protection against moisture and dirt is also a big help to refrigeration men. The seal can be used over and over, eliminates tube wastage, and is the same diameter as the tube for easy threading through walls and partitions, etc.

Point out these exclusive Wolverine Roll-O-Tube features next time a refrigeration service engineer asks for copper refrigeration tube. It's the easiest—and surest way to guarantee satisfied customers. Write, too, for your free copy of Wolverine's Refrigeration Tube Catalog.

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

CALUMET & HECLA, INC.
CALUMET DIVISION
URANIUM DIVISION
GOODMAN LUMBER DIVISION
WOLVERINE TUBE DIVISION
In Canada:
CALUMET & HECLA OF CANADA LIMITED
WOLVERINE TUBE DIVISION
CANADA VULCANIZER & EQUIPMENT CO. LTD.
UNIFIN TUBE DIVISION

WOLVERINE TUBE
DIVISION OF
CALUMET & HECLA, INC.
17226 Southfield Road
Allen Park, Michigan
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES
EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 16, NEW YORK

For more information about products advertised on this page use Information Center, page 20.

'Nation's Greatest Building Era'

'Architectural Forum' Survey Sees Fabulous Future with Private Construction Outlays Reaching $600 Billion for 10 Years

NEW YORK CITY—A construction boom of "dazzling" proportions which will see building expenditures in the next ten years climb 50% over the past record decade was forecast recently by *Architectural Forum*.

The magazine predicted that construction outlays between now and 1967 will amount to a staggering $600 billion compared with $409.6 billion from 1948 through 1957. The $600 billion figure represents more than the present value of all existing private structures, it was noted.

Forum's vision of the future, which it terms "fabulous," is based on two studies just completed by the magazine's economic consultant, Miles Colean. One of the surveys covers the probable level of construction activity for the current year. The other is the *Forum* estimate of building volume for the decade ahead. Taken together, the two studies are said to represent the latest and most comprehensive data available on the building outlook.

Here are some of the factors that will help make the next ten years this nation's greatest building era, according to *Forum:*

$200 billion to be spent on residential building alone: $85 billion on industrial and commercial construction; $16 billion on religious and private institutional buildings; and $75 billion on utilities.

Outlays for schools and educational facilities will amount to about $45 billion, while highway spending will total at least $75 billion, and outlays for sewer and water systems, nearly $20 billion.

The magazine says that the outlook for building is so "dazzling" that the only "trouble question" is whether the economy can supply the men and materials that will be needed to make the goals attainable.

"If the economy can achieve these building objectives, it will have an unprecedented prop for prosperity not only for the next ten years but for all the decades beyond," the magazine said.

As for the immediate future, *Forum* sees new construction this year climbing nearly 4% above last year's total of $47.3 billion to a new record of $49 billion (all data in constant 1957 dollars). This will mark an increase in actual "physical volume." In contrast, the magazine notes, during 1957 dollar volume rose 3% ($1.2 billion) because of inflation, but physical volume dipped about 1%.

Helped by apartment construction, which, according to *Forum,* should top 100,000 units this year, housing can now look to a year in which about 1,050,000 new units will be started, compared with the 1-million-or-less units that were forecast last fall and 1957's actual total of 1,039,200.

Beyond this, says *Forum,* it now seems likely there will be a "slight pickup" in commercial construction, about 4.5% over the autumn forecast, with easier money again responsible.

The magazine also sees added building by privately financed public utilities, now expected to total $6.2 billion. This extra $1.2 billion gain in dollar volume will be more than enough to compensate for a bigger dip than previously anticipated in industrial construction, it was stated.

State Department Cooling System To Be Capital's Largest

SYRACUSE, N. Y.—The air conditioning system for the State Department building and its new extension will be the largest for a single structure in the District of Columbia, it was reported by Carrier Corp.

Its 6,000 tons' cooling capacity ranks third in the nation for buildings under one roof, according to Carrier. Exceeding it are the Pentagon (14,300 tons) across the Potomac River in Virginia and Merchandise Mart (8,500 tons) in Chicago.

Charles V. Fenn, Carrier vice president, said four large-capacity water chilling machines are to be supplied under a contract with William H. Singleton Co., mechanical contractor.

Other large Carrier installations, it was noted, include Rockefeller Center (15,382) in New York City; a system (8,800 tons) covering the Capitol, Library of Congress, Senate and House of Representatives office buildings as well as some smaller structures in Washington; and Southland Center (6,450 tons) in Dallas, Texas.

National Motel Show Set for April 8-10 In New York City

NEW YORK CITY—The National Motel Show will be held here April 8-10, with the Statler hotel as headquarters, it was announced recently.

An attendance of more than 1,200 owners, operators, and prospective owners, in addition to architects, builders, and decorators, is expected. Exhibits by more than 70 suppliers will show the latest designs in furnishings and comfort appliances.

AGA Conference Opens Mar. 31

NEW YORK CITY — American Gas Association's fourth annual General Management Section Conference to be held in Washington, D. C. March 31-April 2 will consider growth of gas air conditioning.

General luncheon sessions are scheduled for Monday and Wednesday, first and last days of the conclave, while delegates have the choice of attending one of three luncheons Tuesday.

Tuesday's luncheon speakers will include Scott Hughes, senior vice president, Southern Union Gas Co., Dalles, on "Economic Implications of Gas Air Conditioning."

A Wednesday highlight will be a panel discussion of gas air conditioning moderated by Hall Henry, president of New England Gas & Electric Association Service Corp.

Make '58 *your big profit year with*

PHILCO Central Air Conditioning!

Philco, world leader in home air conditioning, is offering completely-protected, Direct Factory Franchises for its dramatic, new line of central system residential and commercial air conditioning. Here is a great new business opportunity for you . . . the field of tremendous sales growth during the next ten years. Here is the equipment, price structure and sales promotion that's booming sales . . . all over America!

Boost Your Profits With The New PHILCO Price Advantage Deal!

Philco's new, lower list prices boost customer buying . . . complete home installations are now within the reach of nearly every family in your area. At the same time, Philco's sensational *price advantage* policy gives you the margins that put the big money into YOUR pocket. Philco cordially invites you to compare your present profit picture with this startling new high-profit plan.

World-Famous PHILCO Promotion and Sales Support Behind You On Every Sale!

Philco national and local marketing, advertising and sales promotion is geared to support your sales efforts . . . every step of the way. Now is the time to join the winning team. Here is your chance to cash-in on the sales support that has made Philco a sales leader for generations . . . advertising in national magazines like *American Home, Better Homes and Gardens, McCall's,* etc. . . . local advertising support . . . direct-by-mail advertising to YOUR prospects.

Factory Protected Territories!

Every Direct Philco Factory Franchise is issued with *complete factory protection* within the territory named. No split territories . . . no competition in your area . . . direct contact between you and the Philco factory on all sales! Under this plan, you will receive direct factory assistance in sales and service . . . no middle-man mark-ups.

MAIL TODAY
GET ALL THE FACTS ON THE NEW PHILCO FACTORY FRANCHISE OFFER

PHILCO CORPORATION, Ext. 5065
"C" & Tioga Streets, Philadelphia 34, Pa.

Yes, I'm interested in receiving further information about Direct Factory Franchise for the complete, new line of Philco residential and commercial air conditioning.

☐ Please rush to me full particulars of the plan. ☐ Please call on me in person to discuss the plan.

Name_____

Address_____

City_____ Zone____ State_____

Phone_____

ACR

Frozen Food Handling Ideas--

(Concluded from Page 1)

on frozen food cabinets to assure operator and customer that foods are being held at correct temperatures; 5) rotate stocks in cabinets to insure proper turnover of foods; 6) dispose of damaged or torn packages.

For Consumers

AHEA's recommendations to consumers: 1) place frozen foods in insulated freezer bags or double paper bags at time of selection; 2) move frozen foods as quickly as possible from retail grocery to home frozen food storage; 3) store frozen foods at home no longer than the maximum recommended time for both the food and storage equipment used; 4) observe conditions of frozen foods in retail stores and call retailer's attention to misshapen, soiled, or torn containers, to excessive frost or moisture on the cabinet, and to temperatures in excess of 0°; 5) recognize the fallacy of the "squeeze test" for determining the condition of frozen foods; even though foods may be hard-frozen they may be of poor quality if temperatures are not near 0° F.; 6) recognize the important of zero degree temperature if best quality is to result.

The consumer interests committee of AHEA says it has over the years interested itself in problems of quality, processing, and merchandising as they affect the final value received by the consumer.

Quality Depends on Time, Temperature

Among other findings, the committee points out, Agriculture Dept. studies have shown that quality of frozen food depends on both time and temperature as well as packaging and the type of food. Generally, as temperature and storage time at certain temperatures increase, the food quality is more likely to be damaged, the studies show. If frozen foods are kept at 0° F. or below, storage is not likely to cause many quality problems during reasonable storage periods.

Foods Damaged Above 0° F.

Damage to frozen foods is correlated with the total exposure to elevated temperatures above 0°, USDA studies indicate. These tests show that "ups and downs" in temperatures above 0° create only "downs" in food quality. Fluctuating temperatures below 0° do not appear to cause any marked deterioration during any reasonable period of storage.

It is the total exposure time to temperatures above 0° that causes change, the government testers report. This is true whether the exposure occurs at one time or in a series. In general this data indicates the minimum practical amount and rate of deterioration occurs when foods are held at temperatures that do not exceed 0°.

The frozen food industry is using bulletins, training, meetings, films, and on-the-job training to improve handling of frozen foods, AHEA explains. Several segments of the frozen food industry are carrying the story to consumers.

USDA is continuing the time-temperature tolerance studies. Scientists have devised a simple method for determining the temperature inside an unbroken case of frozen food packages without injuring the packages. In this way frozen food handlers along the line are assured that foods are at proper temperatures all through their distribution, it is pointed out.

'Keeping Food Frozen Not Enough'

M. J. Copley, director of the Western Utilization Research Branch of Agricultural Research Service in Albany, Calif., observes: "Keeping food frozen is not enough. We believe that housewives quite generally look upon refrigeration as a means of preventing spoilage. By 'spoilage' they mean primarily microbiological spoilage, not realizing that drastic losses of quality, such as discoloration, off flavors, and losses in nutritive value occur at temperatures where the food is hard-frozen and micro-organisms cannot multiply.

"The 'squeeze test" is very commonly used to find out whether a package of frozen food is cold enough. This can be very misleading. Many products are frozen hard at 15 or 20°—temperatures at which deteriorative changes take place."

AHEA asks "do consumers recognize temperature differences between various types of refrigerators and freezers?" Some freezer sections may run at 0° F. while others may operate as high as 15, 20, or 25°.

"Do consumers plan length of storage according to type of equipment and the temperature maintained? Do they plan length of storage to suit the type of food?"

The consumer interests committee recommended that processors give attention to improved informative labeling of frozen foods. Adequate labeling is very important and particularly essential for prepared foods which contain a variety of ingredients, the committee said.

The consumer who wants information should have it readily available. For the consumers who seemingly do not look for information on labels, the committee recommends that every possible means be used to educate the consumer to the importance of reading labels.

Opens Engineering Office

SPRINGFIELD, Ill.—Emil L. Tiona recently opened a consulting engineering office specializing in plumbing, heating, air conditioning, refrigeration, and electrical design for public, institutional, and commercial buildings.

For Walk-In Sales

Bally Names Stortz

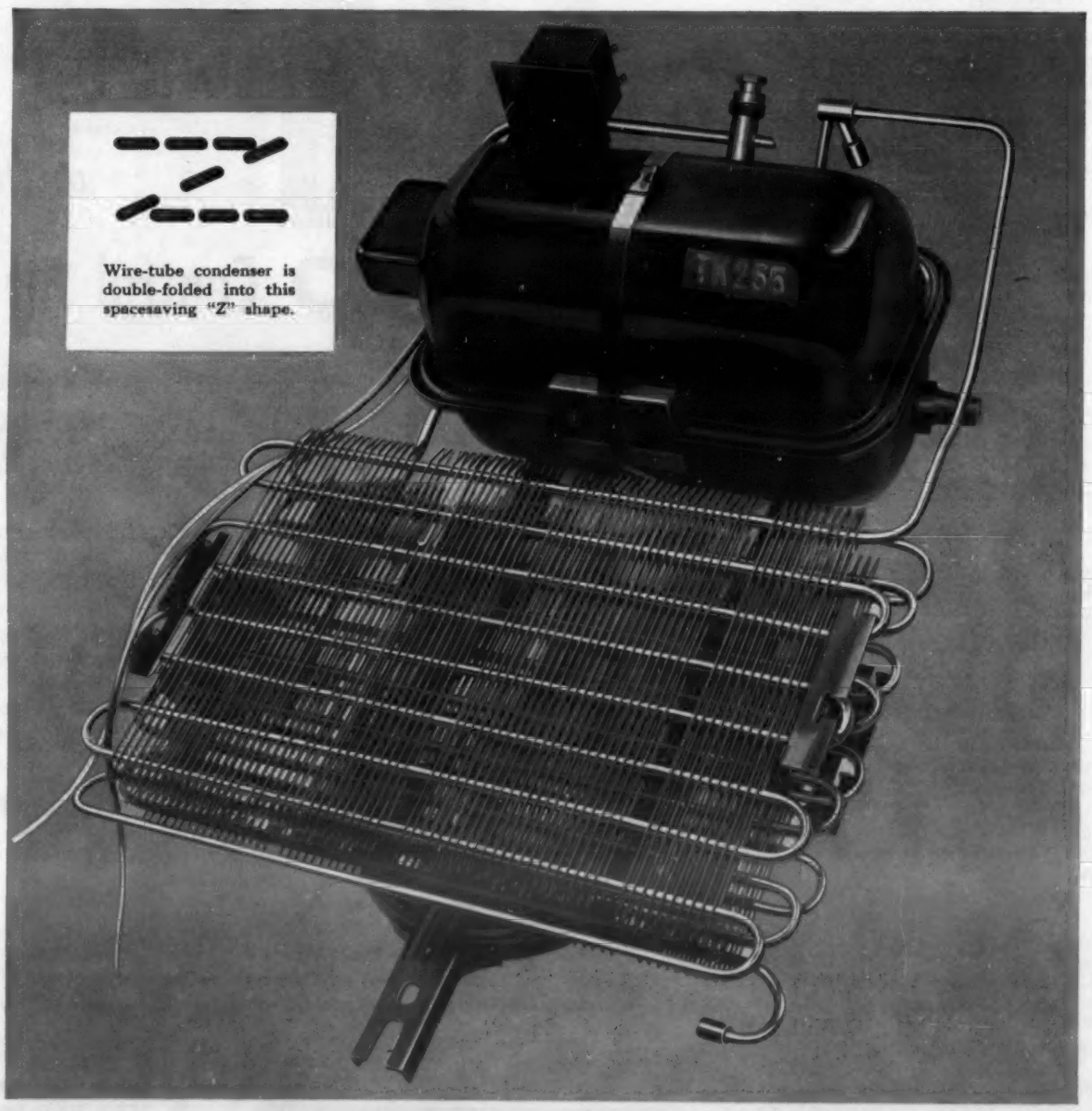
BALLY, Pa.—Appointment of Arthur Stortz as assistant sales manager in charge of walk-ins has been announced by Leon Prince, general sales manager of Bally Case & Cooler Co.

Prince pointed out that during the past year the Bally company has enlarged greatly its activity in walk-ins, having added additional factory space for manufacturing.

In his new capacity, Stortz will have complete charge of the sales of both normal temperature and low temperature walk-ins to the food selling industry through commercial refrigeration and store fixture dealers, and to the food serving industry through Bally distributors among the hotel and restaurant equipment dealers.

Stortz has been in the Sales Dept. at Bally since 1955.

Z-condenser of Bundyweld Tubing



New-design "Z" condenser made with leakproof Bundyweld Tubing fits *inside* General Electric's Straight-Line Design refrigerators and freezers. High thermal conductivity of Bundyweld plus fan (not shown) insure maximum cooling efficiency.

BUNDYWELD IS DOUBLE-WALLED FROM A SINGLE STRIP

Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness, and

passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.

SIZES UP TO ⅝" O.D.

NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

For more information about products advertised on this page use Information Center, page 20.

For European Market

Amana Licenses German Firm To Make Freezers, Refrigerators, Room Units

AMANA, Iowa — Amana Refrigeration, Inc. has licensed a large German industrial firm for the manufacture of certain of its freezers, refrigerators, and air conditioners in the European market, according to a joint announcement by George C. Foerstner, executive vice president of Amana, and Christian Megerlin of Gesellschaft fur Linde's Eismachinen A.G., the licensee.

According to Foerstner, the agreement with Linde should prove mutually beneficial. With the acquisition of the Deep-freeze Div. of Motor Products Co. by Amana in 1956, certain tools, dies, and machinery were available and not needed in the Amana plant. Much of this equipment filled the needs of the Linde group, and additional tools and dies were obtained with Amana engineers and production men working with their counterparts in the German organization.

The Linde group is producing chest and upright freezers, refrigerators, and air conditioners, with tooling supplied by Amana. Design and engineering assistance will also be provided by Amana, as required.

"The Linde firm," the announcement said, "is the oldest refrigeration manufacturer in Germany and the only known firm in the world active in the construction of refrigeration machinery and plants dealing with the whole scale of low temperature — beginning with the comparatively high temperatures of refrigerators and air conditioning equipment down to the extremely low temperatures required for the liquification of air, the separation of gas components, and other processes requiring temperature near the absolute Zero point (-273° C.).

"The Linde organization owns eight factories, a large plant of which is specially equipped for the production of refrigerators, another for construction of refrigeration machinery.

"Other branches of the firm deal with the construction of large-scale refrigeration, such as cold store buildings, refrigeration installations for slaughter-houses, skating-rinks, etc. The field of low temperature installations is taken care of by two highly specialized factories."

NEMA Reports

3,350,000 Refrigerators, 925,000 Freezers Sold In '57, Dip from '56

NEW YORK CITY—Total industry sales of electric household refrigerators slumped in December last year to 214,600 from the 257,400 for the like 1956 period, National Electrical Manufacturers Association reports. Full year sales also dropped to 3,350,000 in 1957 from the 3,700,000 the preceding year. Figures include exports.

A dip was noted by NEMA in December sales of farm and home freezers—both uprights and chest-type—to 47,400 from the 57,400 for the same 1956 month. Yearly sales sagged from the 975,000 in 1956 to 925,000 last year.

Total refrigerator sales for 1957 by size of unit shows the 12-cu. ft. model led the field with 26.8% of over-all sales followed by the 13-cu. ft. and over size with 19.3%.

Freezers of the 9-14-cu. ft. size led in that line with 38.5% of total sales while the 15-17-cu. ft. models came in second with 26.3% of the total.

ELECTRIC HOUSEHOLD REFRIGERATORS

	1957 Per Cent
7 cu. ft. & under	1.5
8 cu. ft.	16.1
9 cu. ft.	4.2
10 cu. ft.	15.3
11 cu. ft.	16.8
12 cu. ft.	26.8
13 cu. ft. & over	19.3
Total	100.0

ELECTRIC FARM & HOME FREEZERS

(Includes 44% for chest and 56% for upright models)

8 cu. ft. & under	3.4
9-14 cu. ft.	38.5
15-17 cu. ft.	26.3
18-19 cu. ft.	14.4
20 cu. ft. & over	17.4
Total	100.0

*Based on data reported to the NEMA Statistical Dept. Feb. 17, 1958.

helps G.E. design a true "built-in"

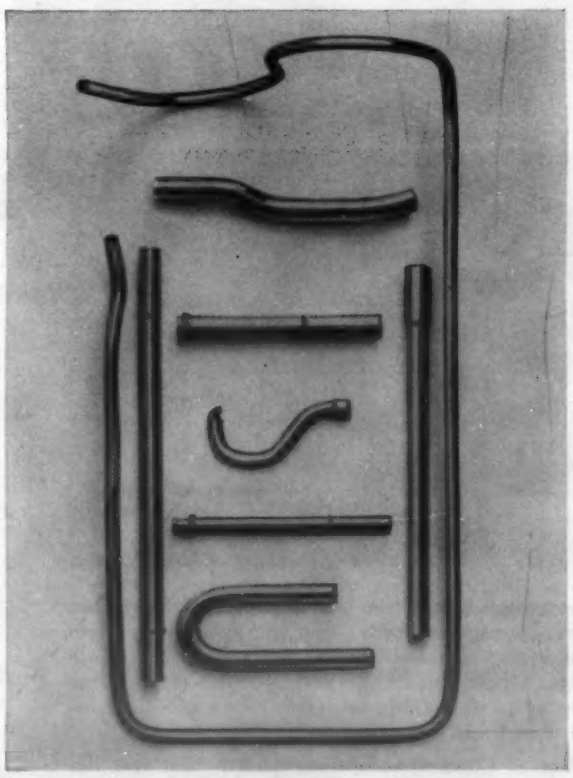
"Fold-up" condenser to go inside flush-fitting cabinets calls for the strength and ductility of Bundyweld Tubing

General Electric pioneered the modern "built-in" look with its Straight-Line Design refrigerators and freezers. However, G-E engineers were faced with a real challenge before the design became functional. Since flush-fitting cabinets restrict air circulation, conventional back-mounted condensers were not practical. Problem: relocate the condenser. Solution: G-E design ingenuity — and serpentine-coil tubing, such as that of Bundy Tubing Company.

Starting with the serpentine-bent Bundyweld,• G.E. forms a wire-tube condenser. Then this assembly is double-folded into a compact "Z." Result: a space-saving unit that fits *inside* the compressor compartment, where it gets adequate air circulation.

Bundyweld Tubing has the high strength and ductility to shrug off rough fabrication operations like this; still deliver extra years of dependable performance. Made by an exclusive process (below, left), Bundyweld is *leakproof by test.* That's why it has become the accepted safety standard of the refrigeration industry for evaporators, condensers, compressor parts, and refrigerant lines.

Add up: 1. Low-cost tubing fabrication by skilled Bundy• operators; 2. No-cost design aid from experienced Bundy engineers; 3. On-schedule deliveries to avoid costly production-line slowups — and you know why it pays to bring *your* tubing problems to Bundy. But why not find out for yourself ... now? Call, write, or wire us today!



These parts for G.E.'s compressor (opposite page) are fabricated at Appliance Park, Louisville, Ky., from Bundyweld Tubing. Strong, ductile Bundyweld comes coiled, in straight lengths, or fabricated to specifications.

BUNDY TUBING COMPANY, DETROIT 14, MICHIGAN

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, ENGLAND, FRANCE, GERMANY, AND ITALY

There's no real substitute for

BUNDYWELD® TUBING

Bundy Tubing Distributors and Representatives: *Northeast:* Chas. H. Stamm, 10 N. Main St., West Hartford, Conn.; Austin-Hastings Co., Inc., 226 Binney Street, Cambridge 42, Mass. • *Middle Atlantic:* Atlantic Tube & Metals, Inc., 451 New Jersey State Highway #23, Wayne, N. J.; Rutan & Co., 1 Bala Ave., Bala-Cynwyd, Pa. • *Midwest:* Lapham-Hickey Steel Corp., 3333 W. 47th Place, Chicago 32, Ill. • *South:* Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg., Chattanooga 2, Tenn. • *Southwest:* Vinson Steel & Aluminum Co., 4606 Singleton Blvd., Dallas, Texas • *Northwest:* Eagle Metals Co., 4755 First Avenue, South Seattle 4, Wash. • *Far West:* Pacific Metals Co., Ltd., 2187 S. Garfield, Los Angeles 22, Calif.; Pacific Metals Co., Ltd., 1900 Third Street, San Francisco 7, Calif.

Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

Heating Charges--

(Concluded from Page 1)

heat into a small crawl space and rises to registers that cannot be closed.

However, the township attorney has reported that both the state fire marshal and township building inspectors agree there is no fire hazard and the furnaces pass all inspections. Approved by the Federal Housing Administration and Veterans Administration, the heating contractor insists this type furnace "has been very successful" before in small homes.

The heating contractor explained that the furnaces are of the counterflow type installed in an insulated crawl space which is used as a plenum.

Air scoop registers placed in the floor bring heated air up into the small domiciles. Heat from the furnace radiates off the floor of the crawl space, similar to the method in a slab-base house. A vapor barrier is placed atop a fill-in in the earth of the crawl space.

Since the homes are only a year old, the heating contractor believes the area underneath and around them "hasn't had a chance to dry out. It's troublesome enough installing a heating system which works efficiently in this climate even in a basemented house. With a crawl space it takes even more time to dry out so the system functions efficiently."

Perhaps, he continued, some of the crawl spaces need more insulation. That's up to the general contractor, he maintains, and if floors are buckling and walls sagging, that may be due to the lumber used, not the heating system.

A heating engineer, brought in by the township attorney to investigate complaints, said the units were acceptable in every way. He explained that "they might work better in a less severe climate than hereabouts" but the system has been used effectively for years.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

skills and more creative thinking.

Management, thereupon, must create and maintain an *atmosphere of symphathetic understanding* so that good ideas can spurt up relaxedly, and be put into effect, "without running the gamut of office machine-thinking," he adds.

Creation of this encouraging-to-idea-men climate is the very essence of corporate leadership.

Three *"C's of business management"* cited by Mr. Prentis as "musts" for effective executive success:

(1) *Common Counsel.* "People always will cooperate and collaborate in carrying out a policy if they feel they have had a voice in making it."

(2) *Courteous Consideration.* "An attitude which goes deeper than mere politeness involves listening with undivided attention to the ideas of associates. Thereupon they will be encouraged to think constructively."

(3) *Concede Credit.* "Nothing costs an executive so little, and nothing can provide more pleasure and bring closer cooperation, than to give another fellow credit for something he has done well."

Happy Spit-In-the-Face

That day a 72-year old employe of Terminal Refrigeration Co. (Los Angeles) retired was a big one. His bosses not only presented the usual farewell dinner and gifts, but rewarded his 35-year service by making him General Manager for one day. "Anything goes," they told him.

With great gusto, he propped his feet up on the Big boss's desk and had his picture snapped doing so. He enjoyed a "once in a lifetime satisfaction" of smashing the company rule against drinking during working hours, too.

As General Manager, he sidestepped that rule by firing all the brass (we bet that felt good) before lunch and rehiring them several hours after he'd served drinks all around the office at company expense.

Everybody had a good time that wonderful "day." And all employes felt afterward that Terminal Refrigeration Co., was a pretty good place to work.

Modern-Day Aesop

Once upon a time a food manufacturer who boasted that he catered to every dietary need from infancy to geriatrics hit upon a great advertising idea, relates an ABP promoter.

To get great masses of people using his food products throughout their lifetimes, he'd give his baby food away. He decided to use the labels to advertise his other products and figures that he would so endear himself to the American people by feeding them for free in their early days that for the rest of their lives they'd never buy another brand of food product.

So he went to marriage license bureaus in a great many big cities and got lists of all the newly married couples. This automatically gave him mass coverage of the market, and he started sending his baby food to the wives.

This was fine except that by the time he had his lists all compiled and got his scheme in operation, five per cent of the couples had moved to different cities. In six months, another five per cent of his people had gone out of the marriage business via separation or divorce.

By this time, he also discovered (from indignant letters) that marriage licenses are also obtained by older couples beyond the child-rearing age; that some couples just can't have babies.

He found quite a few other things wrong with his system and, in fact, it was really no time at all before an awful lot of American families were up to here in baby food they didn't want—and didn't ask to get in the first place.

Not only that, this manufacturer no longer had any way to gauge his production of different kinds of baby foods. There were no sales records to show, for instance, that mothers (and babies) preferred strained spinach two to one over pureed turnips; applesauce three to one over apricots.

So he packed equal amounts of all items and people soon were loaded with turnips and apricots but didn't have enough spinach or applesauce.

And then all the other manufacturers of baby food went to their advertising agencies, and they created great campaigns extolling the plus values of products that are *paid for.* When a mother willingly spends her money for XYZ brand, not just once but time after time, one campaign proclaimed, you can be sure that it's good; that this is the kind of baby food you want to feed your baby.

Another company's campaign stressed the fact that you get what you pay for in this life; that a five dollar pair of shoes just can't be as good as a ten dollar pair; that you've got a right to be suspicious of something that you get for nothing.

This came to be known as the "paid vs. free controversy."

There were some who said that this give-away, mailing list idea was simply a different type of distribution and that the other baby food manufacturers ought to stop promoting the plus values of their paid-for products and join with the give-away firm in promoting all baby foods, paid and free.

But the sound businessmen refused to cast aside the ideals and traditions that have guided American business for centuries —and they stuck to their lasts.

Some criticized them for their stand; but stand they did . . . and they prospered. Despite the free competition.

Sales of baby food have increased every year since that time; a fact which is attested to by the Audit Bureau of Canning.

SO HALSTEAD & MITCHELL ENGINEERS SAID:

When Gross Profits Depend on Refrigeration...

Over 50% of the gross profit of the average supermarket comes from refrigerated items. Naturally, the refrigeration system has to be *dependable* . . . which is why so many supermarkets specify Halstead & Mitchell *Cleanable* Water-Cooled Condensers. In fact, all types of stores relying on refrigeration units are insisting more and more on H & M Condensers. Here's why:

H & M Water-Cooled Condensers operate quietly, and give full capacity even on the hottest days or in crowded equipment rooms. Condenser headers can be removed easily for quick, thorough, mechanical cleaning of the water tubes. Scale and sludge, which reduce heat transfer, are removed without harmful chemical cleaners. Operating costs *stay* lower.

No matter what brand compressors you use, insist on H & M's *Cleanable* Water-Cooled Condensers.

There's a matching Halstead & Mitchell Cooling Tower for all refrigeration and air conditioning applications: sturdy, weatherized, propeller fan models for outside installations; quiet, centrifugal fan models for indoor installations with long duct runs. Take-apart models are available for problem installations.

Ask for all Halstead & Mitchell products at your nearby distributor's or write for descriptive literature—Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

Halstead & Mitchell

WATER-COOLED CONDENSERS • COOLING TOWERS
AIR-COOLED CONDENSERS • FINNED-SURFACE COILS

Handy Tube Bender

Smoothly Bends any pipe or Tubing ⅜"-1⅛" O.D.

• Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.

See your supply house—or write for free folder today.

HOLSCLAW BROS., INC.

428 N. Willow Road • Evansville, Indiana

For more information about products advertised on this page use Information Center, page 20.

Solenoid Valves

Be Sure To Base Selection on Highest Pressure Differential To Be Expected, Canadian RSES Advised by Tom Melville

By Frank J. Versagi

TORONTO, Ont., Can. — "In selecting a solenoid valve, be sure to base your selection on the *highest* pressure differential that can ever be expected across the valve, not on the average pressure differential. After all, a solenoid valve is usually employed as an open-or-closed safety device, and it must be able to operate against the most extreme conditions which might be expected in the system."

Speaking at the 19th annual convention of the Canadian Refrigeration Service Engineers Society recently, Tom Melville, application engineer of Controls Co. of America (Canada), described the construction of basic types of solenoid valves.

"In the normally closed type," Melville said, "the pressure differential across the valve assists in keeping the valve closed in the off cycle. Thus, the solenoid must lift against that pressure drop.

"As a safety factor, to compensate for reasonable variations in line voltage, solenoids are designed to lift at only 85% of rated voltage—80% on d.c. current.

They must also operate properly at 10% over-voltage, either a.c. or d.c.," Melville explained.

"Depending on application, solenoids may be designed for several ratings using the same coil. With the same coil, the lift increases as the orifice decreases. On one design, for example, the solenoid will lift against a 275-lb. differential with a 5/32-in. orifice. The same coil will only lift against a 225-lb. differential with a 3/16-in. orifice; and against only a 125-lb. differential with a 7/32-in. orifice."

Melville pointed out that solenoids are available in flare, solder, and threaded connections.

Where absolutely positive closing is required, a soft-seated valve should be chosen. This is a valve where either the seat or the needle contains a material such as neoprene, nylon, or teflon.

Metal-to-metal seats are entirely suitable and less troublesome where a very small amount of leakage is permissible.

"The leakage is very, very small. In fact, many metal-to-metal seat valves do provide a positive close-off, but the nature of the materials involved makes it economically unfeasible for the manufacturer to make every one provide such a shut-off," he said.

In general, the soft-seated valves are used with gases.

Because solenoids are primary safety controls, they must undergo rigorous tests by Underwriters' Laboratories in the States and similar agencies in Canada. Among the tests conducted are dielectric strength, endurance, torque, seat leak, overvoltage and undervoltage, and temperature tests.

Melville briefly described the various tests and related their practical implications. He defined three terms which he felt are of practical interest to servicemen.

Steady state: these are the conditions which exist—electrically and mechanically—when the valve is full open.

Electrical transient: the time required for the electrical values to adjust to steady stable values.

Mechanical transient: the time required to open completely.

"The current drawn during opening, for example, is about twice that required when the valve is open and the plunger is up," Melville illustrated. "If, for any reason, the higher current value is held for too long a time, coil burnout may result.

"On quick-close solenoids, the mechanical transient may be as low as eight-thousandths of a second. There are, of course, special-made slow-closing solenoids."

Asked about the allowable pressure drop across a valve, Melville stated that depending on application, the pressure drop could go from 2 to 10 lbs. in a liquid line.

"It would naturally be much less in a suction line valve," Melville concluded.

'Do Not Pay' Invoices For In-Warranty Service Impress Customers

DES MOINES, Iowa — Customers who usually never realize how much service they're given during warranty periods get a dramatic reminder from Taylor Refrigerator Co., air conditioning and commercial refrigerator outlet here.

"We send them an invoice on in-warranty service," explains S. G. Taylor, head of the firm, "but a rubber stamp on the invoice advises:

" 'This bill is not charged to your account, but is charged to our warranty service account. DO NOT PAY.'

"This has an excellent effect on our customers," Taylor has found. "Sometimes they phone up expressing doubt that we really mean 'do not pay,' and some have even sent in checks, which, of course, we return."

Taylor also uses this approach when the firm goes back to a job to correct mistakes it has made, he said.

Although Taylor's in-warranty service is actually but a small percentage of its sales, it does total $7,000 to $8,000 a year, which, billed this way, represents a form of advertising and sales promotion, he believes.

These "do not pay" invoices, he said, also fit in nicely with the firm's bookkeeping and accounting procedures.

MINERALLAC
HEAVY DUTY & MEDIUM
JIFFY CLIPS

Also available without mounting hole for use with gun.

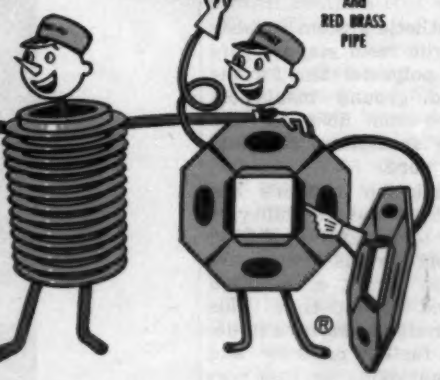
Made of heavier materials! Has exclusive inverted rib, that provides more strength at the bend of clip . . . and, of course, adds the benefits of famous "Snap On" feature! Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

Mr. READI-FIN Joins Mr. READI-PAKT at

READING TUBE

to Produce the Perfect Answer to Heat Transfer and Refrigeration Problems



For years, industries that make or use refrigeration or heat transference equipment have learned to depend on READING for more than just copper tube. They know READING "Lektroseal" as the product of Specialists whose entire facilities are *concentrated* on the fabrication of tubing and tubing alone, from raw material to finished product. That's why that important bonus of reliability goes with every inch of READING output.

Specialized research and engineering, specialized quality control and inspection assure products second to none. Strategically located depots eliminate the problems of time and space. Personalized service delivers *exactly* what is wanted *exactly* when it is wanted.

Pursuing its policy of specialization, READING has developed and added to its famous tube products, a line of heat transfer tubing that is setting new records in the field. Preliminary reports from an independent testing laboratory rate this new tubing *the lightest in weight* and the *most efficient of its kind in the entire industry*. This product, known as Readi-Fin, cuts tubing requirements by more than 50% and increases efficiency by more than 20%; in fact it cuts the size of units needed and cuts costs too.

Made from one piece of copper, its extruded-extended surface offers maximum heat transference, rugged construction, easy fabrication, freedom from fouling. It's available in Water Tube types with finned or plain ends and in Condenser Tube types with finned, plain or stripped ends. All types are worthy of READING, America's "Tubing Specialists".

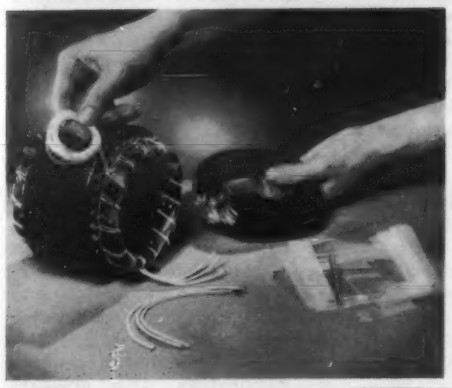
For more detailed information — phone, write or wire

READING TUBE CORPORATION
Empire State Building, New York 1, N. Y. • Plant: Reading, Pa.

Distribution Depots:	READING, PA.	WOODSIDE, L. I., N.Y. 57-17 Northern Blvd.	PHILADELPHIA, PA. 921 Penn St.	CHICAGO, ILL. 724 W. 50th St.	CLEVELAND, OHIO 4615 Perkins Ave.	DALLAS, TEXAS 9000 Sovereign Row
	ATLANTA, GA. 690 Murphy Ave. S.W. Unit 5, Bldg. B	OAKLAND, CALIF. 410 Hegenberger Rd.	LOS ANGELES, CALIF. 520 No. Santa Fe Ave.	DENVER, COLO. 2345 Walnut St.	HOUSTON, TEXAS 1111 Rothwell St.	Brook Hollow Industrial District

'Can Run Motors 35° Higher'

Synthetic Motor Insulation System Claimed Virtually 'Moisture Free'



ELEMENTS in the all-synthetic insulation system for G-E electric motors that are "essentially moisture free" are shown in this picture. They include polyester fiber for tying cord (small coil left), acrylic resin magnet wire enamel (on large coil right), polyester fiber for lead cable (three in front) and polyester film for phase and ground insulation (lower right).

HOLLAND, Mich.—Hermetic motors with a completely new all-synthetic insulation system that is claimed to be essentially moisture free, have been announced by the General Electric Co. as available now for air conditioning and refrigeration compressor applications.

Average moisture content of the new insulation is said to be 80 to 95% less than with insulating materials that are commonly used in motors. The synthetic system is capable of continuous operation at a 35° F. higher temperature level than possible with materials now in use, according to engineers at the company's Hermetic Motor Dept. here.

The synthetic system consists of an acrylic resin magnet wire enamel, a polyester film for the phase and ground insulation, and a polyester fiber for the lead cable insulation, sleeving, and tying cord.

The insulation system's low moisture level and its ability to withstand temperatures of 350° F. for short periods of time are expected to permit a reduction in required dryout time. This should permit an increase in dehydration facility capacity, and the lubricant oxidation that normally occurs during dryout cycles can be minimized with the shorter dehydration period, the engineers said.

Blistering or cut-through of the magnet wire is avoided with the use of a wire enamel that common refrigerants will not soften.

It is also stated that the new insulation system has a high degree of chemical and thermal stability in refrigerants and oils commonly used in air conditioning and refrigeration applications. This stability should extend motor life, simplify the selection of motor overload protection, and permit a somewhat greater freedom of refrigerant selection than previously possible, the engineers said.

Accelerated compressor life tests in addition to extensive sealed tube tests were included in the developmental program of evaluating system compatability, water evolution, retention of major electrical, chemical, and physical properties at elevated temperatures, lubricant solubility, refrigerant resistance, hydrolytic stability, and material uniformity, it is stated.

Hermetic motors insulated with the new materials are available in fractional and integral horsepower ratings.

N. Y. RSES To View B-W Film Mar. 12

EVANSVILLE, Ind.—S. C. Moncher, regional manager for Bendix - Westinghouse Evansville Div. in the New York area, has arranged to provide the program for the New York Chapter of Refrigeration Service Engineers Society on March 12.

The meeting will be at the Broadway Central hotel, 673 Broadway, and will begin at 8 p.m.

John Downen, service manager from the Evansville plant, will present the automatic slide-sound features "A Trip to Bendix-Westinghouse" and "An Electrical Exploration of Motor Compressors." A discussion period will follow the preview showing.

The Bendix-Westinghouse regional manager in each area is in a position to make available this program for RSES chapters or other interested groups, it was noted.

Mueller Names

Payton as Advertising, Sales Promotion Chief

PORT HURON, Mich. — Orville R. Payton has been named to direct all sales promotion and advertising activity for Mueller Brass Co., it was announced by R. L. Gibbs, general sales manager.

O. R. Payton

Payton, who has been advertising manager since 1950, joined the company in February, 1943. He started in the production planning department, moved to product design and engineering, and has been in the advertising department for the past 11 years.

Controls Co. Ups Net Earnings 12½% In '57

SCHILLER PARK, Ill.—Controls Co. of America increased net earnings 12½% on a slightly lower sales volume in 1957, Louis Putze, president, announced.

Net earnings after taxes were $1,120,385 in 1957 compared to $994,958 the year before. On the basis of 619,380 shares of common stock outstanding at the year end, earnings were equal to $1.81 a share as against $1.61 a share.

The company had 604,316 common shares outstanding at the end of 1956, and on this basis that year's net was equal to $1.65 a share.

Sales for the year were $27,100,244, compared with $27,391,948 in 1956, according to the firm.

Torrington technology,
tools and testing facilities
have already solved upward
of half a million different details
in the design problems
of air impellers for industry.

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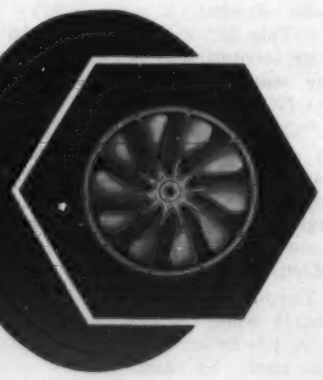

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engineers work only *on air moving problems*
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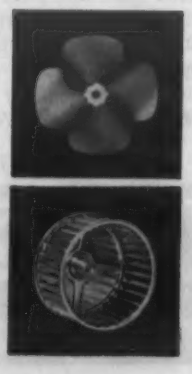

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For more information about products advertised on this page use Information Center, page 20.

BETTER MANAGEMENT TECHNIQUES

What are the elements of "good management" for the air conditioning and refrigeration and heating dealer or contractor?

There are many elements that go into "good management" for this kind of a business, but it would seem that the three principle ones would be (1) the development of the kind of salespower that will develop enough sales volume to operate the company profitably and promote expansion; (2) proper control of expenditures and services to insure an adequate profit; (3) proper direction and handling of personnel to promote growth in the business and retention of good personnel.

In this series of articles the NEWS has drawn from a variety of sources to present some of the best current thinking on some specific elements that make for success.

Organization Chart Called 'Key Secret Of Good Management' for Contractors

CHICAGO—One of the many "secrets of good management" is good organization, that is, one where the responsibilities of individuals are sharply defined yet with enough flexibility to minimize problems due to absenteeism, vacations, and the unplanned "extras" that always come up.

How can this be applied to contractors was outlined by Guido F. Restagno in a "money making forum" held by Refrigeration & Air Conditioning Contractors Association during its 12th annual convention here.

"Merely having a composite of personnel who work well together does not in itself constitute a good organization," Restagno cautioned. "However, if we take this group and outline the respective duties of these individuals and further spell out their respective working relationships with each other, we are then on the right track toward good organization."

To achieve this Restagno recommends drawing up an organizational chart to outline the positions that make up a firm and how they are related.

Two such charts were presented at the forum by Restagno: one, a general chart for an average size contractor; the second, the actual chart of Restagno's own company, which has 98 employes.

In either case the top of the chart starts with "general management" and then is broken down into the three main groups responsible to the head of the company: (1) sales management, (2) erection and installation, and (3) financial and office management.

Outlining first the detailed responsibilities as spelled out on the general chart, Restagno commented, "By now some of you may say, 'well, I only have a 10-man organization' or possibly even smaller. In any event an organization chart would be helpful to you, for, after all, one man can wear many caps and his name can be repeated.

"The important point to remember," Restagno said, "is that in this way you allocate the responsibilities along a definite pattern, and you define the relationship of these responsible functions with each other."

His own company, he explained, is divided into three main groups—sales, servsice and installation, and financial and office management, each headed by a qualified manager.

The sales manager "is responsible for all the sales engineers, sales promotion, and, because of his background, I have chosen to have him responsible for the engineering as well," Restagno declared. "We have a sales supervisor who also acts as the assistant sales manager. The chief engineer works with the estimator engineer and draftsman."

The Erection and Service Dept. includes a sheet metal division, shop supervisors and shop men, field supervisor and field men.

"In our pipefitting service we have a supervisor who has full control of it. There are inside and outside supervisors under the sheet metal department and under them the shop and outside men. Under each service department manager we have the respective supervisor; next, the dispatchers who with the call takers and file clerks dispatch the servicemen," Restagno explained.

"Under Financial and Office Management we have our payroll and bookkeeping division which controls cost and billing. The office manager handles the telephone operator, typing clerks, purchasing agent, stockroom clerks, and file keepers.

"We also have a credit department which is fairly new and has been one of the greatest assets to our company."

Commenting about the organization as a whole, Restagno reminded contractors that some people at the bottom of the chart, such as servicemen, are important keys to the success of the business.

"He is our service representative, sort of a diplomat. He can make it easy for boys on top if he does his work and his training is proper. Take the telephone girl. The calls come in through her. Her feelings and well being for the day will determine her treatment of customers, and delegating the call to the right person is very important. Of course, order-takers must be courteous.

"Every function here on the chart is really important," Restagno emphasized. "These people can make it easier to concentrate on creating a better organization."

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VOLUME 83, NO. 9, SERIAL NO. 1,510 MARCH 3, 1958

"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—*Charles A. Dana.*

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JIMMY HATLO
12-30
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They'll Do It Every Time

by Jimmy Hatlo

Opportunity For Heating Contractors: Independent Humidity Control Is Desired by Users--And Utilities

MANUFACTURERS of residential air conditioning equipment have good reason to be proud of all the advantages their products are bringing to customers. They're sponsoring a better way of life.

However, they could deliver an even greater service to customers—and one that's truly needed—by developing equipment which will permit humidity control *independently.* (That is, a humidity control system which isn't tied to refrigeration system cycling.)

Technically, of course—and by definition—complete air conditioning does include humidity provisions.

However, most residential and commercial air conditioning "packages" currently on the market supply EXTRA humidification or dehumidification either as a by-product or an after thought, if at all.

Rarely do these "packages" include an individualized device which compensates for normal operation humidity inadequacies.

Standard packaged air conditioners usually aren't engineered to deliver pinpoint humidity conditions during those moderate and cooler hours when, although below-normal humidity can induce discomfort, the refrigerating system doesn't operate.

That's because standard all-year residential equipment doesn't remove moisture from the air when it isn't cooling it, or add moisture during heating cycles.

Nevertheless, humidity conditions often are more important, comfort-wise, than precise temperatures. Especially is this true during the night—or in daytime when a "personnel load" is absent from a home ("just The Little Woman alone in the house").

On the other side of the fence, to provide better comfort conditions in summer, dehumidifiers often are sold to owners of all-year residential air conditioning systems which are overcapacitied refrigerationwise.

Seems ridiculous, but it's true!

Mr. Air Conditioning and Heating Contractor:

Providing your customers with comfortable humidity conditions, *independent of cooling,* could be accomplished by selling accessory dingususses which, technically speaking would supply among other things:

(1) Over-cooling, or

(2) Restore the heat of compression, or

(3) Introduce additional heat from another source to keep relative humidity at a desired level.

Besides fulfilling customer's wants, insertion of this extra comfort factor into residential air conditioning systems would partially help solve a huge problem which faces electric utilities presently.

The latter need augmented winter heat loads nowadays to balance summer cooling requirements.

Special humidification devices could result in the average home upping its use of electricity through all-year air conditioning around 1,500 hours annually.

Furthermore, that home's electrical energy consumption should rise 1,200 kilowatt hours per year.

All this can be done without boosting a utility's peak load!

So salubrious a situation could mean the addition of 8 to 10 percentage points to the annual load factor for public utilities almost everywhere in our nation.

Let us repeat: individual humidity-control-gadget insertions would not increase utility peak loads a single kilowatt!

And you can bet your boots utilities will abet contractors who install these gadgets.

It would seem that manufacturers and utilities alike have much to gain by doing something about the humidity control factor—engineering-wise and promotion-wise.

In this connection, we quote Glydewell Burdick, manager of the Rate and Valuation Department of Wisconsin Power & Light Co.:

"As this matter becomes better understood in electric utility circles, those manufacturers who mass produce air conditioning equipment with built-in reheat humidity control features can expect utilities as active allies in telling the story to the public. Their stake is too great for it to be otherwise."

Likewise, we might predict that heating and air conditioning contractors can profit from selling and installing reheat humidity additives, also.

OVERLOAD BURNS OUT POWERFUL INDIAN CHIEF

W. W. Hawley, Ltd.
Kingston, Ontario

Editor:

A story recently came to my attention which I felt might merit recognition in your newspaper.

As you no doubt know there are two factors in the Northwest Territory of Canada that are world famous, the Royal North West Mounted Police and the Hudson's Bay Trading Co. The slogan of the Hudson's Bay Trading Co. is that they "are able to supply anything that the Trapper requires in his daily life."

A powerful Chief of an Indian tribe residing near a local Hudson's Bay Trading Post, walked in one day and requested he be supplied with a squaw, 40 years old. By some quirk of fate the Hudson's Bay Trader was able to supply this item.

Three or four days later the same Indian Chief returned, bringing the 40-year-old woman with him, and requested that she be exchanged for two 20-year-old women. After much controversy the Indian went home, with the two 20-year-old squaws.

Within a week he returned, requesting that the two 20-year-old girls be exchanged for the 40-year-old woman. He advised the Trader that he was "not wired for 220."

Hoping this finds favour, I remain,

W. A. POTTER,
General Manager

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Installing Philco's Ionitron Negative Ion Generator

INSTALLATION of Ionitron negative ion generator accessory for the 1958 Philco Bantam 1-hp. room air conditioners is claimed to be a simple task. The model, above, is shown attaching the mounting clip.

SECOND installation step in attaching the Ionitron negative ion generator is placing the power pack on the side of the cabinet. It slides into a built-in slot.

THIRD installation step is placing the tube into position. It is slipped into place in the same manner as a fluorescent light tube. Introduction of the Ionitron as an optional feature on '58 models, was reported in the Dec. 16, 1957 NEWS.

Distributor's Early Drive Pushes Fedders Heat Pumps

BROOKLYN—Kicking off its air conditioning advertising campaign early, L and P Electric Co., Inc., local Fedders-Quigan Corp. distributor, said it is placing special emphasis on heat pump room air conditioners.

Opening ad in a large metropolitan newspaper stressed that the Fedders heat pump heats in winter and cools in summer. This will be followed with "a heavy dealer cooperative newspaper, radio, and direct mail" campaign, the distributor indicated.

All ads will push home the theme that the heat pump air conditioner gives "all this for the same price of summer air conditioning alone if you buy now."

New I-W Air Conditioning Factory Features 'Fully Equipped' Test Lab

NEW YORK CITY—A new factory, claimed to contain one of the most fully equipped laboratories for testing air conditioning performance, has been completed at 225 Manida St. in the Bronx by I. W. Air-Conditioning Corp., producers of "In-Wall" room conditioners.

The total area of the new factory covers approximately 15,000 sq. ft., with facilities for production of some 200 cooling units per day, the company said.

Some of the highlights of the plant, according to the announcement, are an automatic electronic leak detection station for checking abrasing points, a complete hot water and steam heating plant for checking performance of cooling and heating combination units, and an automatic evacuating station for removing moisture and non-condensibles under heat and high vacuum.

Also, a special room for producing wide ranges of temperature and climatic conditions for testing B.t.u. and noise level rating, and a recently developed, simplified system of introducing refrigerant into each conditioner automatically under assembly line conditions.

In-Wall air conditioners permit alignment with any type of convector heating unit and are available in ¾, 1, and 1½-ton sizes, it was noted.

W. V. Hastings Dies

William V. Hastings, salesman for United Refrigerator Co., died in Kansas City, Mo. recently at the age of 60.

Third Edition

Air Conditioning 'Blue Book' Lists Over 40 Producers

MADISON, Wis.—Third edition of the *Blue Book of Air Conditioning* lists products of over 40 room air conditioner producers.

Various functions of room air conditioners, dubbed "Engineering's Magic Box," are outlined for dealers. Nearly half the brands listed in the 1955 (first) edition are no longer in production, this third edition points out.

Copyrighted "Cooling Load Estimate Form" of Air-Conditioning & Refrigeration Institute explains how to "size" room unit in this $5 book published by National Appliance Trade-In Guide Co. at 2105 Sherman Ave. here. Quantity prices are also available.

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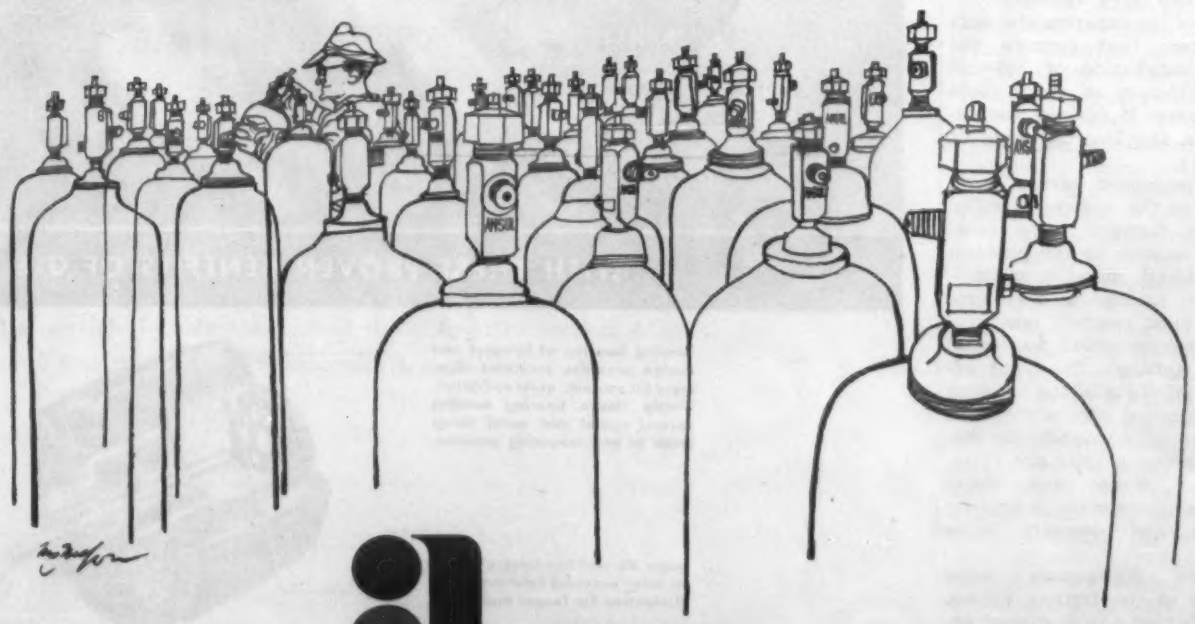

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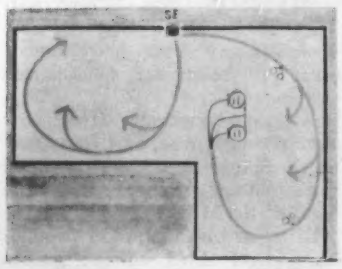
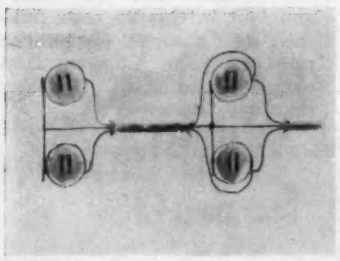
'3 Wiring'

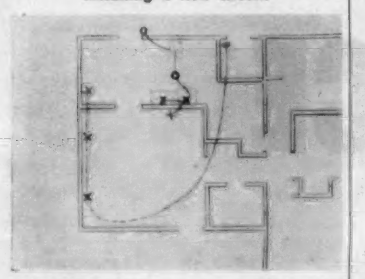
Experimental System Provides 115 and 240-Volt Current In Any Room In House for 'Least Possible Cost'



SPLIT PERIMETER wiring, or the "House-power Loop," by using a 3-wire circuit will beef up circuit capacity to 4,800 watts, 3,000 watts more than the presently used 2-wire, 115-amp. circuit.



THIS IS HOW the 3-wire circuit would be normally connected. But any of these outlets can be converted to 240-volt power inexpensively and without the bother of installing a new circuit.



ELECTRICAL CODE says no other outlets should be connected to the same circuit which supplies receptacles in the kitchen. But, with 3-wire loop, there were five 20-amp circuits in kitchen of demonstration home, enough to operate 12 coffeemakers at one time. Thus lighting fixtures and other small kitchen loads can be handled efficiently and safely by any circuit.

DETROIT—Hailed as a possible breakthrough in the adequate wiring problem for homes, a three-wire circuit providing 115 and 240-volt current to every room in the house was demonstrated for the first time in suburban Troy recently.

News of the experimental wiring system that permits the plug-in installation of 240-volt air conditioners in every room of the house if desired was reported in the Dec. 23 issue of the NEWS.

Split perimeter wiring or "3 wiring" as the system is called was put forward as a compromise answer to the problem of providing more capacity—not more wiring—to the home for the least possible cost.

The demonstration was made possible through the joint efforts of members of the building and electrical industries. It grew out of a roundtable discussion about a year ago sponsored by *House and Home* magazine to consider improving the electrical elements in a home.

Howard Stephenson, sales manager of the Detroit Edison Co., explained the 3 wiring experiment to the press.

"There is really nothing new in this installation," he declared. "It's only an attempt to free ourselves from present practices and code limitations using available materials to create an installation with superior safety, additional capacity, and greater convenience.

"Basically the system and material has been available for years—three conductor, No. 12 non-metallic sheath cable, more efficiently used to double the number of circuits and nearly triple the capacity at any particular point in the residence.

"The conventional installation of wiring in a home utilizes several 15-amp, 2-wire circuits to serve the lights and most of the receptacles. These circuits generally radiate from the distribution panel somewhat like the spokes of a wheel and extend to the various rooms of the home.

"We usually call this system 'radial wiring.' Each of these circuits has a capacity of 1,800 watts and often only one of these circuits serves all the outlets in a particular room.

"The shortcomings of this installation often show up when the woman of the house, attempting to do some ironing in the evening, while catching the latest quiz show on television, finds herself in a blackout because of an overloaded circuit.

"Split perimeter wiring uses the principal of the 3 wire circuit, or two circuits in one. Two or three of these circuits extended around the outside of the home and increased in size from 15 amps to 20 amp capacity, nearly triples the ability for using lamps and appliances.

"Each of these 3-wire circuits has a capacity of 4,800 watts, 3,000 watts more than the 15-amp, 2-wire circuit.

"Actually there are two 115-volt circuits at each outlet so we now have at least two circuits in every room. Outlets on the inside walls may be connected on 2-wire extensions from the main 3-wire loop."

The outlets on the 3-wire circuits will normally be connected for two 115-volt receptacles, Stephenson pointed out.

"But," he added, "another advantage of this system is that now we have easy provision for

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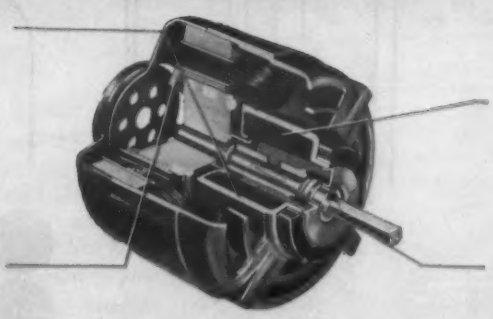

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For more information about products advertised on this page use Information Center, page 20.

a 240-volt air conditioner or some other 240-volt appliance that might come along 10 years from now.

"The 3-wire housepower loop makes it possible to convert any of these outlets inexpensively and without the mess and bother of installing a new circuit. All we have to do is have the present receptacle changed to one of the type that will take a 240-volt plug.

"Because of the increased capacity of the 3-wire circuit, both the air conditioner and the normal other load of lights and TV, etc. will operate at topmost efficiency.

"Most of the kitchen load is served by circuits originating in a kitchen sub-panel. However, to accomplish the greatest efficiency for the wiring system in the whole house, these kitchen circuits supply a living room convenience outlet, plus several lighting outlets.

"Conversely, the living room circuits supply a kitchen outlet.

"This is actually a deviation from the electrical code which specifies that no other outlets should be connected to the same circuit which supplies the receptacles in the kitchen.

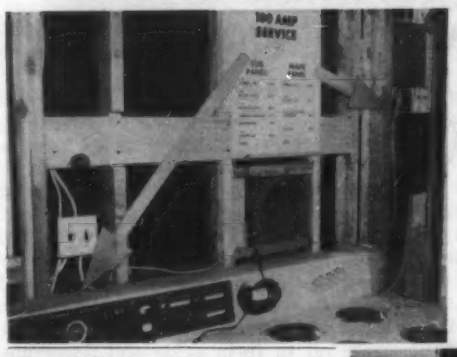
"However, in the 3-wire housepower loop, we have at our disposal the use of five different 20-amp circuits for the kitchen —enough to use simultaneously portable appliances totaling up to 12,000 watts.

"With this much capacity available, actually enough to operate about 12 coffeemakers at one time, we know that lighting fixtures and other miscellaneous small kitchen loads can be efficiently and safely served by any of these circuits.

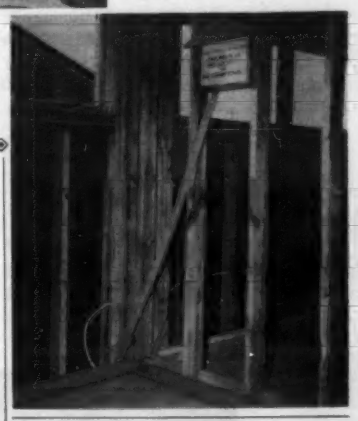
"By doing it this way, costs can be reduced both from a labor and material standpoint."

Stephenson pointed out that the demonstration home also employed three other modern pieces of equipment to cut costs and improve service.

One was push-in terminals on all switches and receptacles to replace the standard screw-type terminals. The electrician has only to bare the end of the wires and push them into the terminal device where they clamp in place. This saves about three minutes on each one installed, or an average of two hours labor per home.



VIEW OF MAIN PANEL in demonstration home, showing how wiring capacity is ballooned with 3-wire circuits.



BELOW: With continuous wiring around baseboard of room, 240-volt air conditioner can be literally plugged in anywhere.

Another was a receptacle outlet on the outside door light fixture for outdoor Christmas tree lighting or electric lawnmower use.

Third was baseboard continuous wiring around the perimeter of the room.

What will 3 wiring cost?

"The job for the usual wiring system put in a home of this size with the integral kitchen unit costs approximately $260," Stephenson said.

"The wiring system that has been installed in this experimental job costs an additional $55. This job raises the electrical capacity, excluding the major appliances, from 6,000 watts to 16,800 watts or approximately 180% increase in electrical capacity for a 21% increase in cost.

"Talking off the top of my head, I would say that perhaps this figure could be reduced. The greater standardization of materials that can be made possible by the use of the same system in many, many homes will tend to reduce the cost of those materials in themselves.

"If all homes use three No. 12 conductors instead of the present conglomeration of conductors, the manufacturers can possibly do something with the price of their product. The same thing applies for panels.

"Builders themselves can help in this area by requiring that greater standardization be applied to the wiring job, just as they have done in the structural materials that go to make up the other portions of the house.

"Although I have referred to this as a split perimeter job of wiring, it is entirely possible to do a true perimeter job of wiring where the circuits in the house would be ringed much the same way that the utility rings its outside distribution lines which serve the home.

"There is also the possibility of using bare neutrals.

"These and many other improvements are just as possible as Sputnik and will take just about as much red tape to accomplish."

shaded-pole motor

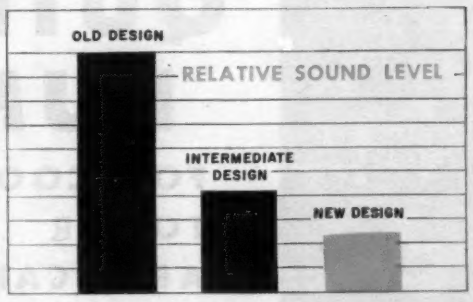
For your customers' satisfaction, General Electric offers you an important advancement in its 5-inch diameter unit bearing shaded-pole motor design. ***This is the new General Electric shaded-pole motor that has a 40% lower sound level, and an improved sound quality through reduction of objectionable frequency peaks.***

In order to put this new motor on the "very quiet" side, General Electric's engineers made extensive use of G.E.'s industrial sound laboratory. Here the new motor design was thoroughly tested—both free running and mounted on products. As a result, General Electric engineers achieved a marked reduction in over-all motor sound level.

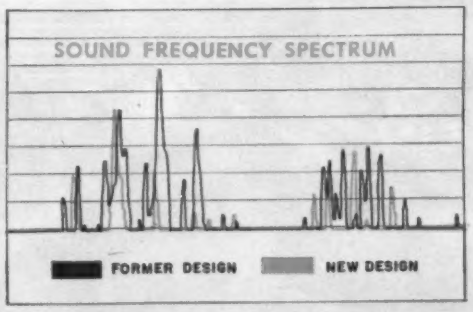
LESS NOISE MEANS MORE SALES FOR YOU. This combination assures you of a truly quiet motor for those applications where noisy operation can mean lost sales —for example, in appliances and air-moving devices for homes, hotels, hospitals, etc. The significant decrease in shaded-pole motor sound level was made possible by a new magnetic stator and rotor design. This new design allows for lower sound level without sacrifice in motor performance, and completely eliminates the use of magnetic wedges.

LONGER MOTOR LIFE RESULTS FROM PROVEN ALL-ANGLE BEARING DESIGN. The extra-large capacity sealed-in oil system as shown in the cut-a-way illustration has become the accepted quality standard in such difficult to service applications as condenser cooling fans and unit heaters.

Like more information on the many additional features of the G-E shaded-pole motor line? Fill out and mail the coupon below, or contact your nearby General Electric Apparatus Sales Office. Section 632-14, General Electric Company, Schenectady 5, New York.



BAR GRAPH shows that new shaded-pole motor has a *40% lower sound level* than previous design, over 74% lower than old-style design, to provide quieter operation where noisy operation means lost sales.



ACTUAL OSCILLOSCOPE READINGS show how the new shaded-pole motor design reduces objectionable sound pitch peaks. The new design *improves sound quality* by making noise level less noticeable.

Progress Is Our Most Important Product

GENERAL ELECTRIC

FOR A COPY OF THE FREE BULLETIN, GEA-6134, covering ratings 1½ watts through ⅛ horsepower, mail this coupon to Section A632-14, General Electric Company, Schenectady 5, New York.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Used Driers (4)

When rust is found in a drier there are two major possibilities. The most hoped for is that when the unit was installed or repaired some rusty component was put into service; the rust flaked off and found its way to the drier. If this is the case, there is no further problem.

The other possibility is that moisture and air are in the system in such amounts as to be reacting with iron and forming the rust during operation of the unit. In this case, a leak would have to be located and eliminated.

If the drier contained a fair amount of rust, but only trace amounts or no evidence of acid or other corrosion products, it would be fairly safe to assume that the rust found its way to the drier from some initially rusty part.

For, if there were sufficient moisture and air in a unit to cause a major amount of rust, the same impurities would have reacted with the refrigerant and oil to form acids and decomposition sludges.

Not infrequently, used driers contain a few small pieces or scrapings of metal—copper, iron, or aluminum. Most frequently these are the result of a little negligence on the part of the serviceman. In reaming a tube, for example, he may have let the small particles of metal remain in the tube. Or in filing a sharp edge of an iron fitting, he may have let the filings fall into the fitting and remain there during assembly. Or he uses steel wool without care.

Once in a while, however, metal in the drier may have a greater significance. There was one case where a series of small experimental compressors were failing in "epidemic style" indicating that there was some design or production factor at fault.

ALUMINUM PISTONS WERE SCORING

The compressors were removed for dismantling and study, and other components of the units were cut open and investigated, including the driers.

The driers showed a very heavy concentration of aluminum particles, far too great a quantity to have been caused by mere carelessness such as described above. It was reasoned that so much metal could only have come from wearing operating parts. And indeed, it turned out to be "out of spec" aluminum pistons which were scoring and causing the difficulty.

Sand and grit are frequently found in driers, these from two sources. Sometimes it is again plain carelessness on the part of the serviceman. Servicemen have been seen to pick up a stick from the ground and fish around in a tube to remove a swab or cloth, in the meantime depositing grit and dirt in the fitting or tube.

Then there is the serviceman who will use sand cloth to clean a tube and fitting, especially a large one, then not bother to clean off the residue of grit.

Very often the sand found in a drier is core sand, left on a casting even after subsequent machining operations and handling. The sand finally breaks away from the casting during operation and travels through the system.

If the amount of sand or grit is high, it will pay to pump down (or even discharge) the unit and clean it out to prevent serious scouring damage to operating parts. The need for this, however, is very rare, and the use of a drier prevents the sand from recirculating through the unit repeatedly, thus greatly reducing its harmful potential.

DRIER EXAMINATION CAN HELP DIAGNOSE CONDITION OF SYSTEM

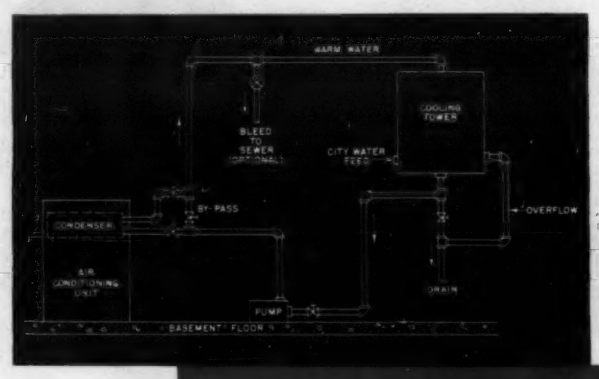
Whether used driers are examined by the serviceman or the manufacturer, the important thing is that *the examination of a used drier gives a very good idea of the condition of the system from which it was removed.*

While drier manufacturers correctly point out that 95% of the driers returned as defective are not defective at all, but have merely done the cleaning up job they were designed to do, most of the manufacturers are happy to work with servicemen in examining driers from troublesome installations. As mentioned earlier, it is to the advantage of the serviceman when returning such a drier to give as full a case history as possible.

Sometimes it is desirable to send also a sample of oil from the troublesome system. At least one company insists that oil be sent only in plastic bottles, since they have found that some of the acids which might be present in the oil would react with glass, making any analysis of the oil valueless.

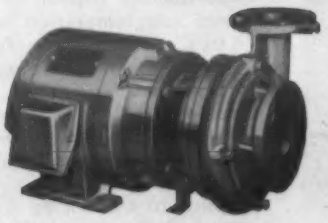
After taking the sample of oil, it is a good idea to remove the cap from the sample bottle occasionally as the oil warms up—to relieve the pressure if the oil happened to contain a fair amount of refrigerant.

(To Be Continued)



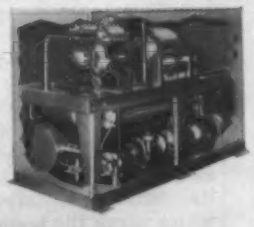
QUIETER PUMPS FOR COOLING TOWER APPLICATIONS

B&G 1522 CENTRIFUGAL PUMPS



B&G SERIES 1531-B CENTRIFUGAL PUMPS

Featuring vertical split case design...self-lubricating, leakproof "Remite" mechanical seal ...latest NEMA motors. Superfinished shaft oversized for minimum deflection. Impeller is of sound hydraulic design, with balancing ring and relief holes to reduce thrust. Capacities to 1200 GPM, heads to 420 ft. Many sizes carried in factory stock.



B&G PACKAGE LIQUID COOLER

A complete cooling unit for homes, apartments, commercial and industrial buildings. Low pressure drop through evaporator—non-recycling pump down—integrated electrical control system—complete wiring—are a few of many outstanding features. Send for Bulletin HB-755.

Get rid of pump noise troubles in your cooling installations ...next time install a B&G 1522!

This pump is *really quiet*...because *both pump and motor* are equipped with long bronze sleeve bearings...and because of the noise-dampening flexible spring-type coupler.

The B&G 1522 offers an impressive number of other features for dependable, low-cost operation. The "Remite" Mechanical Seal, for example, ends leakage troubles. It's self-lubricating—harder than glass—wear-proof. The impeller is dynamically balanced for smooth, vibrationless operation... the entire bearing bracket assembly, including shaft and sleeve bearing, is interchangeable. Servicing is simple—the 1522 separates into three parts.

All these plus values cost no more—the B&G 1522 Pump is *competitively priced!* It is available as an all-iron, bronze-fitted, all-bronze or a stainless steel unit, with capacities to 150 GPM, heads to 115 ft. Available in common sizes from factory stock. Send for Catalog.

Send for your free copy of the B&G Six Step Manual for Designing Cooling Tower Systems.

BELL & GOSSETT COMPANY

Dept. FE-64, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, W. Toronto

Birge To Head Ranco's Export Activities

COLUMBUS, Ohio—Appointment of Walter W. Birge as head of export activities of Ranco Inc. and its subsidiaries has been announced by A. M. Hoover, president of the company which manufactures refrigeration, air conditioning, laundry, and automobile heater controls and motor relays.

W. W. Birge

At present, Ranco has two subsidiaries, Ranco Ltd. in Scotland and Ranco Italiana S. p. A. in Italy, and has a stock interest in Australian Controls Ltd. Sales are made to all principal export markets where restrictions permit.

For 15 years, Birge represented the U. S. State Department in various capacities in Argentina, Mexico, Turkey, Iraq, Saudi Arabia, Czechoslovakia, and French West Africa. From 1953-55, he directed the broadcasts in Munich of Radio Free Europe beamed behind the Iron Curtain to Czechoslovakia. Prior to joining Ranco in 1957, he worked in the foreign department of the investment firm of Bache & Co. in New York City.

For more information about products advertised on this page use Information Center, page 20.

How Distributor Can Put 'Life' Into Commercial Units

Create Need or Demand In Area by Displays, Direct Mail, Ads, Working With Food Groups; Have Trained Salesmen, Give Client Something Extra

CHICAGO—How the commercial refrigerator distributor can put life into his product by performing needed services for his customer was outlined by George Wiedemer, president of Cable-Wiedemer, Inc., Rochester, N. Y. recently.

Speaking at the 11th annual convention of the National Commercial Refrigerator Sales Association, he declared, "today more than ever before the manufacturer should need and does need us distributors for these services because his product would be useless if they were not performed—and he cannot perform them adequately himself, nor as economically as the distributor."

"To put life into a few pounds of steel and screws means many things," he explained. "It means the creation of a need or demand in your area for the equipment."

This can be done through periodic direct mail, advertising in local newspapers, and working with food groups by appearing before them or helping with food shows.

It also means having a trained sales force and a showroom equipped with working models for live demonstrations, Wiedemer added.

'Visual Aid'

"The display in your store of large blown-up photographs of installations, with your customers' names on the photos, will help your prospective customer to visualize what his store can look like," he asserted.

"Also by means of these blown-up pictures, the customer will often recognize the installation as that of a friend or acquaintance and his interest may be heightened."

'Use Mfrs. Store Planning Depts.'

Wiedemer urged his fellow distributors to take more advantage of manufacturer's store planning departments "to give the customer something extra and more elaborate than perhaps our store planning department offers.

"The more pains we take to impress the customer with our know-how the more the customer will feel that we are interested in him; and the more he will realize that we are organizing his selling area for maximum sales.

'Talk Percentages Of Profit to Him'

"Our ability to talk percentages of profit in his varied merchandising endeavors will impress upon him that we are using all of our facilities to make or keep him a successful operator.

"If a new store is being planned and an architect has been retained, we should work with him. Recently these architects have been willing, in some parts of the country, to pay for these services. Three per cent is the fee being charged. Our company has done this several times recently."

Wiedemer pointed out that the distributor's responsibility today goes beyond the normal ordering, transporting, receiving, warehousing, and delivering the manufacturer's product.

"Today, the distributor must coordinate all requirements for condensing units, detail the electrical and plumbing needs, and must be familiar with all local codes and ordinances, water supply and electrical load requirements.

"Air conditioning and heating sometimes fall under our jurisdiction and planning.

'Connect with Power Firm'

"Make connections with your local power company and take advantage of such connections. Sometimes they can be a source of fresh and new leads on remodeling jobs or a new store."

Wiedemer declared that the distributor must carry adequate parts, provide emergency repairs, and even hold the customer's hand if necessary.

He pointed out that his firm has men on duty at all hours between 7 a.m. and 11 p.m., Sundays and holidays included.

"This has worked out wonderfully well," he continued, "and I recommend it highly if this type of service is available in your area. We believe this type of service will be valued more and more by our customers as time goes on because some of our competitors have little or none.

"A service manager who is sales-minded can help your salesmen turn service work into a sales tool. He can impress your customer with his know-how in connection with installations, electrical and plumbing problems, air movement, etc. In due time, the customer's experience with lack of service by others will drive him to you.

"Our salesmen utilize the services of our service manager by taking him on some of their calls prior to obtaining an order. He goes to help advise the customer what he can or cannot do, to impress upon him that his problems are our problems, which will take that load off his mind.

'Work with Contractors'

"We use our service manager to work with contractors. As a result of the good feeling between our company and the contractors, they often refer to us future leads. They are always glad to work with us on a job."

Wiedemer suggested that diversified lines, such as wood or steel shelving, choppers, slicers, scales, ice cube machines, and air conditioning help sell a package deal to the customer.

"This makes his financial problem a one-stop deal and you have better control over the entire order," he explained.

"Profitwise for you, the picture improves with a larger volume sale.

"I can honestly say that even when we have lost an order for the major refrigeration fixtures we have wound up with a portion of the order, generally the counter equipment, blocks, and supplies. So it pays us to carry these items.

"We use such items also as a door-opener."

The Rochester distributor predicted future new business can be found in automatic vending machines.

"Recently our firm made two installations of these vending machines and from reports received they have added a tremendous volume to our customers' business," he commented.

"Personally, I always specify Lewin-Mathes Copper Tube"

We welcome stiff-necked specifications.

We meet them . . . because the copper we form into tube is first *refined by us* in our own plant.

We meet them . . . because Lewin-Mathes' *completely integrated operation* permits a standard of quality control—from raw material to packaged tube—that is unsurpassed anywhere in the industry.

As refiners, we know the copper going into Lewin-Mathes Tube is pure. As fabricators, we painstakingly control every physical and chemical property of the finished product. And as *integrated specialists*, we take pride in delivering every foot of Lewin-Mathes Copper Tube uniform and perfect . . . to meet your most exacting requirements.

Nothing primitive about Lewin-Mathes supply facilities. Our products are available through Wholesale Distributors, serviced by Lewin-Mathes Mill Depots throughout 48 states.

LEWIN MATHES
SAINT LOUIS, MISSOURI
COPPER AND BRASS TUBE PIPE AND ROD
DIVISION OF CERRO DE PASCO CORP.

You Asked About It

From the many requests for information it receives, the NEWS will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry. If you do have a question or problem concerning which you think the NEWS might be able to help, be sure to state the problem clearly, and provide as much information as possible.

Q. I think I have an application for a suction line drier. How effective is a normal liquid line drier when it is mounted on the suction line? Is there a basic difference in design between a liquid line and a suction line drier?

J.B.K.—Atlanta

A. J. E. Hoffman of Sporlan Valve Co. answers, "The normal liquid line drier still effectively performs two of its three major functions when applied in the suction line. It still effectively removes moisture and acid, but no longer protects the expansion device from dirt.

"When applied to a suction line, such a drier may result in two other difficulties—it may trap oil and it may cause an excessive pressure drop.

"Few, if any, driers are designed especially for suction line application. However, the normal liquid line drier performs satisfactorily if sized generously to prevent excessive pressure drop. This is important because the high volumetric flow in the suction line is liable to cause a considerable pressure drop and the effect is a much greater decrease in system capacity than would be obtained from a corresponding drop in the liquid line.

"Always use a drier with a fitting size equal to or greater than the size of the suction line.

"Generally speaking, driers are applied in the suction line only as a temporary measure under unusual conditions; for example, in cleaning up a system after a motor burnout. (Sulfur dioxide, however, can only be adequately dried in the vapor side of the system.")

LITERATURE

Dunham-Bush Describes New Door Heating System

WEST HARTFORD, Conn.—Dunham-Bush Bulletin No. 6013 describes a new door heating system incorporating "HU" heating and ventilating units.

These units supply air through a duct to a grille above the door and blanket the door opening with heated air; the air is pulled back to the unit from floor grilles located within the building on both sides of the entrance.

Photos and plan of a typical installation showing supply air ducts in the ceiling and return air ducts in floor grilles together with description of unit parts and accessories are given in the bulletin.

New Applications Manual Describes Control Valves

CHICAGO — Refrigerating Specialties Co. here has announced availability of a new engineers application manual, Bulletin 90-10, which describes control valve combinations for automatic hot gas defrosting of various types of flooded and direct expansion ammonia evaporators.

Selection and capacity tables are given for special suction and hot gas solenoid valves as well as defrosting relief regulators, it is explained.

Henry Catalog 202 Covers Ammonia Valves

MELROSE PARK, Ill. — A new catalog (No. 202) covering ammonia valves and accessories for refrigeration and industrial application has been released by Henry Valve Co. here.

The company has also issued a revised catalog No. 103 on valves, driers, strainers, and accessories for refrigeration, air conditioning, and industrial applications.

Aids Quick Selection Of Carrier Hermetics

SYRACUSE, N. Y.—A catalog (No. 19C-104) for quick selection of hermetic centrifugal refrigerating machines made by Carrier Corp. is now available for capacities from 90 to 1,100 tons.

Complete information for each of 28 standard models is outlined on individual pages.

Frick Bulletin

WAYNE, Pa.—Frick Co. has published a multi-colored 32-page bulletin illustrating how many types of its equipment are used in various types of air conditioning and refrigeration applications.

WHAT . . WHEN . . WHERE
— A Guide to Coming Events of Interest

National Electrical Manufacturers Association Meeting
March 10-13, Edgewater Beach hotel, Chicago.

Gas Appliance Manufacturers Association Annual Meeting
March 31-April 2,
The Greenbrier, White Sulphur Springs, W. Va.

Air-Conditioning & Refrigeration Institute Annual Meeting
May 4-7, The Homestead, Hot Springs, Va.

National Restaurant Association Convention, Exposition
May 5-9, Navy Pier, Chicago.

Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit
May 7-11, Shrine Exposition Hall, Los Angeles.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers and American Society of Refrigerating Engineers JOINT MEETING
June 23-25, Leamington hotel, Minneapolis.

Arkansas Plant Assembles 100 Clutches Daily for Auto Air Conditioning

MONETTE, Ark. — Electro-Lock Co. is now producing automatic clutches for auto air conditioners at the rate of 100 a day here after spending some weeks training employes to assemble the item.

Original parts or at least a majority of them are made in Memphis but the clutch is assembled here. Unit was designed by Wade Pitts, Jr. of Memphis. Contracts are held by Electro-Lock to supply major auto manufacturers with clutches to be used on air conditioners in cars.

Refrigerator Coatings Is Featured Talk

EVANSVILLE, Ind. — O. J. Spawn, technical supervisor, Finishes Div., E. I. du Pont de Nemours & Co., Inc., was featured speaker at a recent local section meeting of the American Society of Refrigerating Engineers. His subject was "Protective Coatings for Aluminum Refrigerator Parts."

NEW LOW-COST ANSWER TO
DE-SCALING and CLEANING
Problems

The PORTABLE
HASTINGS CLEAN-IT

THE ONLY COMPLETE UNIT ON THE MARKET

INVALUABLE FOR CLEANING ALL TYPES OF CONDENSERS

Coil Surfaces — Coil Tubes
Cooling Towers — Blower Wheels
Water Heaters — Air Handling Units

FEATURES INCLUDE
ACID PROOF TANK • PUMP • HOSES
MOTOR REVERSIBLE FOR PRESSURE OR SUCTION
JET AND SUCTION NOZZLES • RUBBER TIRED WHEELS

HASTINGS CLEAN-IT
Safe — Convenient . . .
SAVES TIME and MONEY
SATISFACTION GUARANTEED

Write for Prices and Bulletin AC-38-C

HASTINGS AIR CONTROL, INC. 3215 Leavenworth Omaha 5, Nebraska

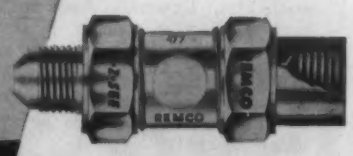
REMCO E-Z-SEE
LIQUID INDICATORS
ARE STANDARD FOR
ORIGINAL EQUIPMENT

JOHN E. MITCHELL • DODGE • HUPP
CHRYSLER • HARRISON RADIATOR
CADILLAC • FRIGIDAIRE
TYLER • FORD
GIBSON • DeSOTO • OLDSMOBILE
PLYMOUTH • CONTINENTAL • EATON
BUICK • TRANE • BASTIAN-BLESSING
NOVI • FRIGIKAR • NASH • CLARDY
CAPITOL REFRIGERATION • GIRTON
NATIONAL-U.S. RADIATOR • KYSOR
FRIGIQUIP • AUGUST G. BARKOW
FILTRINE • GENERAL MACHINE & MANUFACTURING • ONAN • FEDERAL

Remco hermetically sealed E-Z-SEE Liquid Indicators are used by more than 60 manufacturers.

They are available in brass or cadmium plated steel with flare or sweat connections. Sweat connections are swivel so that they can be soft or silver soldered with no danger from heat.

All steel indicators are UL approved for Freon-12 and -22. Write for low net prices and Bulletin R-11 for engineering details.



% STANDARD

REMCO INC.
ZELIENOPLE, PA.

AVAILABLE TO THE TRADE THRU WHOLESALERS EVERYWHERE

We're Specialists In
Refrigeration — Air Conditioning — Electric Motors, Too!

SAVE MONEY, time, effort by ordering from this complete catalog.

PARTS and SUPPLIES
Over 10,000 items...most complete list in the world... carried in stock! You'll find them all in the NEW Harry Alter Dependabook No. 167 for Fall-Winter, 1957-58.
Write on your letterhead for the DEPENDABOOK

WHOLESALE ONLY

The HARRY ALTER CO., Inc.
Chicago 16, Ill. 1717 S. Wabash Ave.
New York 13, N. Y. 134 Lafayette St.
Dallas 7, Tex. 122 Parkhouse St.
Atlanta 10, Ga. 690 Stewart Ave., S.W.
FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG HOUSES

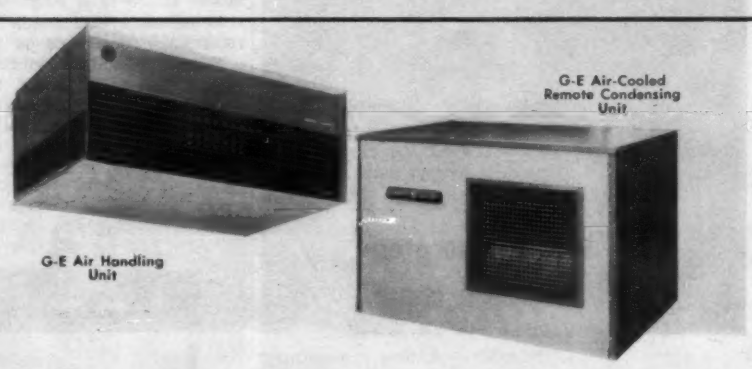
For more information about products advertised on this page use Information Center, page 20.

BLUEPRINT for LEADERSHIP

in residential heating and cooling

G-E Whole-House Packaged Cooling Unit

BLUEPRINT for taking a big lead in cooling sales with the most flexible air conditioner on the market—General Electric's whole-house packaged unit. This compact, low-cost G-E Residential Air Conditioner is making history! It's a natural for ranch-type homes—but any type home is its market, *regardless of heating system.* Air-cooled, *self-contained*, it can be installed with, or completely independent of the heating system, in attic, closet, utility room, crawl space, garage, any convenient place. Cash in on its popularity!

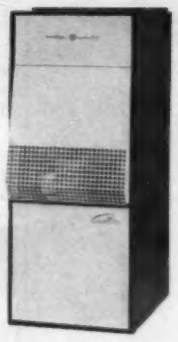


G-E Air Handling Unit

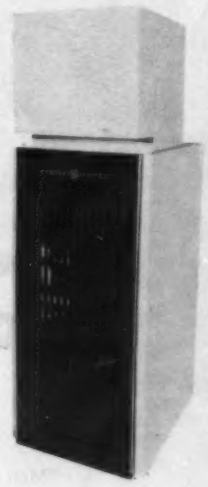
G-E Air-Cooled Remote Condensing Unit

BLUEPRINT for rounding up air-cooled split-system sales in the home cooling market—General Electric Remote Condensing Unit. Air-cooled remote condensing unit is weatherproofed—may be stationed anywhere—inside or out. For remote application with G-E Cooling Coils and Furnaces—or handsome new General Electric Air Handling Unit (shown). Latter may be tucked into any convenient space in house. Your market:—homes with limited space.

BLUEPRINT for moving out ahead in the oil heating field—with General Electric's smart new Custom Oil Furnace. Another smart unit chock-full of appeal to women! The clean, quiet, upflow General Electric Oil Furnace is the lowest hiboy type on the market—only 55" high and takes very little floor space. Ready for adaptation to whole-house cooling. Manufactured to General Electric's high quality standards, it's priced competitively with ordinary furnaces. *Every time you sell a Custom Oil Furnace you've built a prospect for a General Electric Air Conditioning Unit.*



BLUEPRINT for capturing the *premium* sales in gas heating—General Electric's beautiful new IMPERIAL Gas Furnace. So smart-looking, most owners prefer to show it rather than hide it in the cellar or utility room. Quiet, clean, all-automatic, it's especially attractive to women. Men go for its famous Pin-Point Heat Exchanger and advanced safety and engineering features. Equipped with a Slow Speed Blower which makes it easy to add whole-house cooling. Upflow and downflow design with matching add-to air conditioners. *Whenever you sell one, you're on the way to selling General Electric Year 'Round Air Conditioning* (as shown).



A BIG PROFIT PLAN FOR YOU FOR '58!

Quality products are only the beginning! Your General Electric BLUEPRINT FOR LEADERSHIP Plan gives you a course in selling—attractive financing plans—national advertising and promotion—guided local advertising—and the selling power of the General Electric name. Join the profit parade! If you don't have a General Electric franchise, contact your nearest General Electric Distributor or mail the coupon today.

General Electric Company, Home Heating and Cooling Dept., Tyler, Texas

EVEN MORE NEW G-E PRODUCTS COMING YOUR WAY! *Watch for them!* THEY'RE PART OF YOUR GENERAL ELECTRIC BLUEPRINT FOR LEADERSHIP!

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

ACD 4

General Electric Company
Home Heating & Cooling Dept., Tyler, Texas

I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

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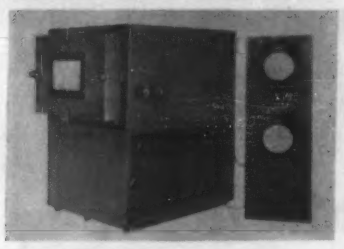
FIRM_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

For more information about products advertised on this page use Information Center, page 20.



Altitude Simulated In Test Chamber

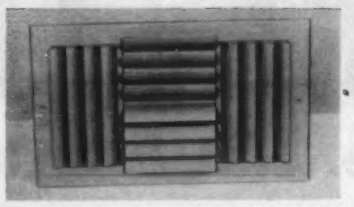
——KEY NO. H-310——

INDIANAPOLIS — A compact 12-cu. ft. environmental altitude chamber which simulates altitudes from sea level to 50,000 ft. in 6 minutes and to 80,000 ft. in 20 minutes has been announced by Webber Corp.

Pull down time from ambient (80° F.) to -100° F. is 50 minutes. Sufficient reserve refrigeration capacity maintains -100° F. with a 500-watt electrical input at 50,000 ft. altitude, Webber said.

Develops Adjustable Curved Louver Grilles

——KEY NO. H-311——



WATERLOO, Iowa—A new line of grilles and registers with adjustable curved louvers of extruded aluminum has been developed by Waterloo Register Co., Inc.

Louvers can be arranged to provide four-way flow of air from one register. The complete line includes grilles and registers for one-way flow either horizontal or vertical, simultaneous two-way flow horizontal or vertical, three-way flow, horizontal to the right and left and either up or down from the center group of louvers.

Introduces Power Inshot Gas Burner Model

——KEY NO. H-312——

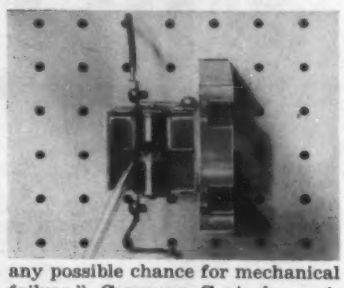
ROCK ISLAND, Ill. — Nu-Way Corp. has announced a new power inshot gas burner.

Designated model G-200 and having an input range of 80,000 to 200,000 B.t.u.h., the new gas burner is described as having a "clean, slim-trim integrated design that is extra compact and light weight."

A new aid to servicing is the "panel construction." All operating parts and complete factory wiring are collected on one mounting panel.

Reveals New Electrical Control Concept

——KEY NO. H-313——

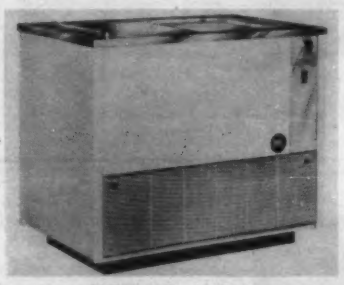


DETROIT — A new electrical control concept has been revealed here by Congress Controls Div., Tann Corp. which incorporates control action through activity of balls within a magnetic electrical cavity.

Claimed to be "new and revolutionary," the concept forms the nucleus of components acting as relays, limit switches, proximity switches, motor starters, logic devices, static-type switching devices, modulators, and variable resistance power control units.

"Since the magnetic ball devices do not have any mechanical moving parts these units eliminate any possible chance for mechanical failure," Congress Controls engineers stated. They added, "This electrical control concept can spell the end to maintenance and fatigue problems of electrical control components."

Offers 2 '1958 Look' Beverage Coolers



——KEY NO. H-314——

NEW MILFORD, Pa.—Two new "1958 Look" beverage coolers have been added to Brewer-Titchener Corp.'s line of beverage coolers and vendors.

New model C-58 is for small installations and holds six cases (standing) or 12 cases (corded). Model C-208 is a large cooler for volume sales and holds 12 cases (standing) or 24 cases (corded).

Features include: virgin copper or stainless steel tanks, five-sided refrigeration, stainless steel tops and sliding lids, vermin-proof insulation, hermetic unit warranty for five years, and baked enamel finish.

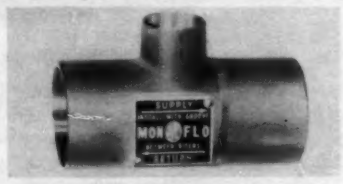
Switch Operates In Small Space

——KEY NO. H-315——

CHICAGO — A new momentary contact switch designed to operate where space is at a premium has been announced to the electrical manufacturing industry by Alcor Mfg. Co.

New switch is U. L. listed and will be known as series 1500. A normally open switch, it is 9/32 in. thick and has a plunger stroke of 1/8 in.

Series 1500 switch is standard equipped with spade terminals, although other terminal arrangements are available.



'Red-Ring' Fitting Added to Line

——KEY NO. H-316——

MORTON GROVE, Ill.—Bell & Gossett Co. has announced a new "Red-Ring" fitting in its "Monoflo" one-pipe diversion fitting.

The company states that the new Red-Ring unit offers the same design features now used in Monoflo installations and can be used for either supply or return.

Low Silhouette cooling tower out of sight at street level

"Man-high" Binks 3-B series cooling towers let you make installations that are out-of-sight at street level. Maximum heights range from 6' to 7½' through the entire selection of frame sizes. Because of their low silhouette, 3-B cooling towers help preserve the clean architectural lines found in today's modern buildings.

Complete operation flexibility and capacity selection. There are 24 different cooling towers in Binks 3-B series—a wide range of refrigeration capacities. Individually powered blowers on multiple blower towers permit complete operation flexibility for most efficient cooling under varying load and weather conditions.

Whisper-quiet operation. Binks 3-B cooling towers operate so quietly they give you complete freedom in establishing their location. Put them adjacent to windows or in building wells, with complete confidence that they will disturb no one. The squirrel cage blowers have only 1/3 the tip speed of equal capacity propeller fan units. Dynamic and static balancing also insure vibrationless operation.

Minimum maintenance. Blowers and motors are outside the tower—not in the moisture laden air stream. All panels are heavily galvanized. Outsides of towers have two coats of aluminum paint. The insides are protected by a durable zinc chromate coating.

Send for complete data. Ask your Binks Branch Office, or write direct for a copy of Bulletin 477-A and 333. Binks engineers will be glad to answer your questions and help solve your particular cooling problems. There is no obligation.

7802

Binks
EVERYTHING FOR WATER COOLING

A COMPLETE LINE OF NATURAL DRAFT AND MECHANICAL DRAFT COOLING TOWERS AND INDUSTRIAL SPRAY NOZZLES

Binks Manufacturing Company

3116-38 Carroll Ave., Chicago 12, Ill.

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For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

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What's New or Current Literature Available

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For more information about products advertised on this page use Information Center, page 20.

Changes Forced Air Heat System

——KEY NO. H-317——

ST. JOSEPH, Mich. — Changes in "Electrend" forced air heating systems, manufactured by Electrend Products Corp. are incorporated in the new B model series.

To deliver a quiet flow of warm air to the lower zone of the room has been Electrend's method. Under this method, the warm air at the ceiling level is drawn into a wall-enclosed duct, reheated, and issued at floor level. The lower half of the room actually remains warmer than the usually wasted ceiling area.

Adds High-Ladder Maintenance Truck

——KEY NO. H-318——

PORTLAND, Ore.—A new high-ladder maintenance truck, HL-1, developed by RolAway Truck Mfg. Co., Inc. has been added to the firm's line of more than 70 different production models of specialized materials-handling, non-powered trucks.

A compact mobile unit which can be extended to give safe working footing 8 ft. 3 in. off the ground, enabling a practical reach to 16 ft., yet when telescoped the unit is low enough to pass through standard 6 ft. 8 in. doorways, it was stated.

Ladder is stable and solid when extended with ladder extensions locked in place by double, independent locks which can be released only by the operator using one hand on each at once. The release of one lock alone will not let the ladder come down.

SUBCOOLED LIQUID FEED AT CONSTANT PRESSURE AND SUCTION TEMPERATURE

For any refrigerant. Feed pressure adjustable.

WATKINS PRESSURIZED PLANTS

INCLUDES COMPRESSOR PROTECTION.

Write for Bulletin CC-1

J. E. WATKINS CO.
MAYWOOD, ILLINOIS

Improves Air Intake On Oil Burners

——KEY NO. H-319——

GARWOOD, N. J.—Ease of installation and improved air intake control are features of the new 751 series conversion oil burners, announced here by the Thatcher Furnace Co.

Air intake on the new oil burner is controlled by two separate air bands that are adjusted individually. This method of adjusting air intake allows a more critical blend of air and oil, giving a fine mixture.

The air bands can be set for the exact amount of air required for efficient combustion at all capacities within the range of the burner.

Installation is facilitated by an

adjustable pedestal base that compensates for height and angle variation in aligning the oil burner with the combustion chamber.

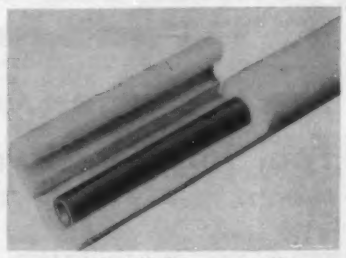
While reducing installation time, the adjustable pedestal gives positive alignment of the burner with the combustion chamber, it was added.

Low-Temp Pipe Covering Has Pre-Adhesive Edges

——KEY NO. H-3110——

CHICAGO — Low temperature pipe covering with patented pre-adhesive edges is claimed to cut application time and costs up to 50% for all large or small pipes, Glo-Brite Products Co. announced.

Pipe covering of "Styrofoam" is available in an extensive range of diameters suitable for most applications in the low temperature pipe covering providing insulation and complete vapor barrier, anti-

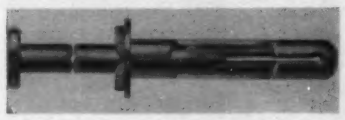


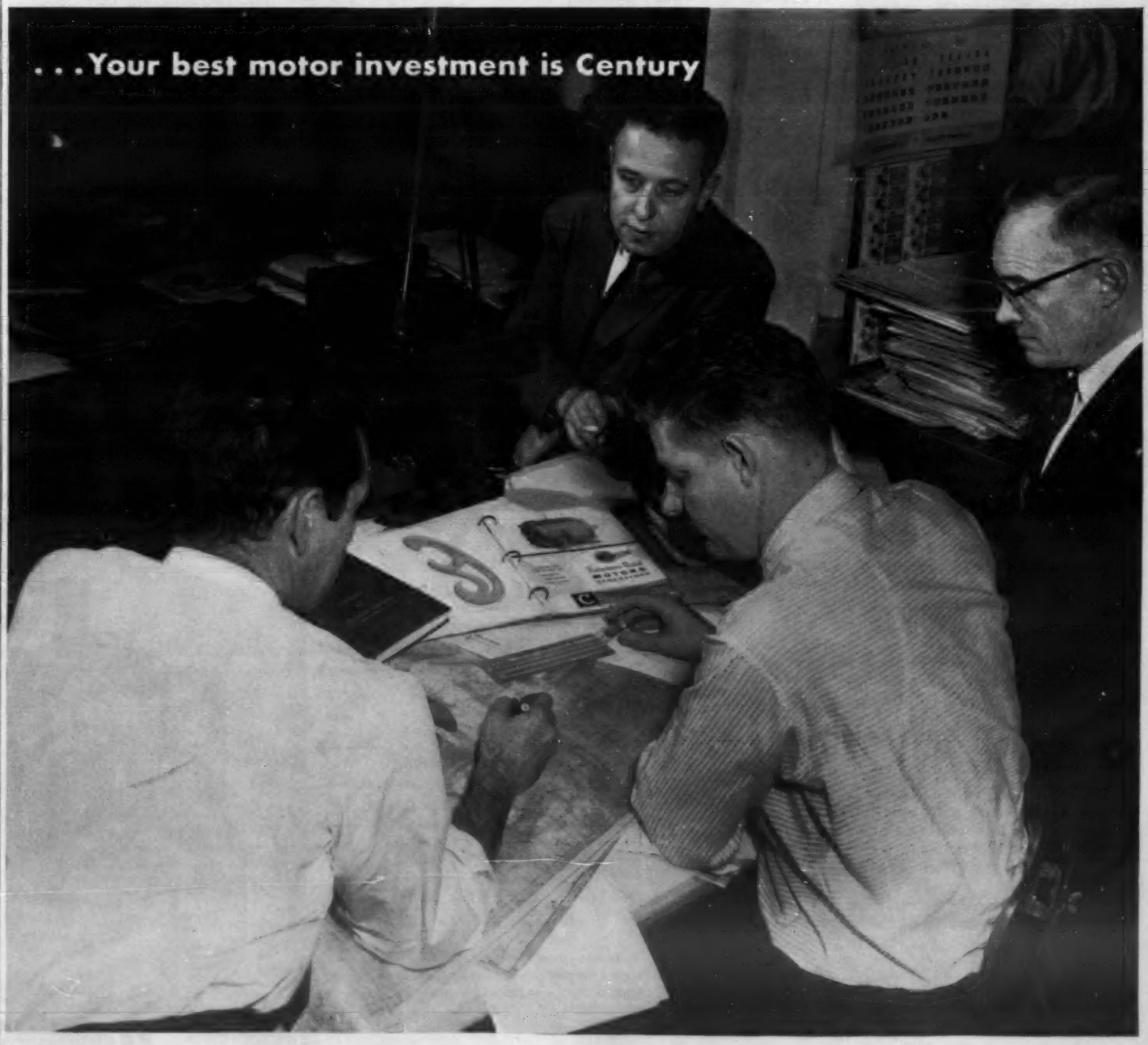
sweat and anti-drip properties.

Can Use Anchor In Over, Under Size Holes

——KEY NO. H-3111——

GARWOOD, N. J. — An improved, easier-to-drive anchor for use in masonry, concrete, or cinder blocks has been announced by Diamond Expansion Bolt Co., Inc.





Specify Century for top performance in motor-driven equipment

The performance and acceptance of equipment in the field can depend on the motor that drives it. And the design of motor-driven equipment is not complete until the motor is specified. This involves careful consideration of motor type and of motor manufacturer as well.

A familiar scene in the engineering departments of leading equipment manufacturers finds Century Application Engineers helping to determine the correct motor for the job. They are often called in during the design and development stage. Through their know-how and experience they help select the motors to match the performance of the equipment.

Century motors write their own record of reliability. Get all the facts on why Century is your best motor investment. Call your local Century man or Authorized Century Distributor.

Century MOTORS

CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri • Offices and Stock Points in Principal Cities

Winter Air Conditioning Fundamentals

The U-Gauge—An Important Tool for the Serviceman

By H. C. Gurney, Janitrol Div., Surface Combustion Corp.

Too many servicemen are working today without the benefit of one of the most useful tools a gas serviceman can have in his tool box. The tool is the U-gauge. With the exception of pliers, screw driver, and crescent wrench (or set of end wrenches) it is probably the most useful tool a serviceman can have.

A U-gauge is simply a tube bent in the form of the letter U attached to a suitable mounting which contains a scale. The U-tube is partially filled with a suitable liquid and the most practical liquid for the serviceman is water for the obvious reasons that it is convenient and free and best suits the pressures a serviceman is normally called upon to measure.

Water must be drained from the U-gauge during periods of freezing weather and the gauge filled again the next time it is used. This inconvenience may lead to the temptation of using anti-freeze as the liquid, or anti-freeze mixed with water. This must not be done because these solutions will not have the same specific gravity as water and will give erroneous readings.

A U-gauge is used to measure pressure by connecting one leg of the U-gauge to the manifold or the gas line where the pressure is to be measured. The pressure of the gas will force the water downward in the leg to which the connection is made and upward in the other leg of the U-gauge. The difference in the liquid level of the two columns is the pressure in inches of water.

The unit "inches of water" is commonly used in gas appliance work for manifold pressure, pilot pressure, and supply pressure. Ounces (in reality ounces per square inch) is also sometimes used. Ounces should not be confused with inches of water; they are not the same unit of measurement. One ounce is equal to 1.73 inches of water.

U-gauges are often listed as "U-tube manometers" or "U-type manometers" in the catalogs of instrument manufacturers. A 15-in. U-gauge is the best size for general work, such as setting gas input and trouble shooting.

FOR INSTALLATION

One use of the U-gauge is setting the gas input on gas designed appliances by setting the manifold pressure. The installation instructions for some gas designed equipment contains manifold pressure tables which enable the serviceman to get the input by setting the manifold pressure. This is done by adjusting the gas pressure regulator.

The tables shown in the installation instructions are only for standard equipment at sea level and do not apply to special equipment or equipment for use in high altitude areas. The advantages of setting gas input by using a U-gauge are as follows:

1. Saves time—one attempt (metering is by trial and error).
2. It is not necessary to turn off other appliances using gas.
3. Can set input on unit heaters and other appliances in commercial and industrial establishments where large quantities of gas are consumed in process equipment which cannot be shut down.

FOR TROUBLE SHOOTING

The U-gauge is an invaluable tool for trouble shooting. More often than most people realize, poor performance of an appliance is due to the supply pressure being outside the range for which the appliance was designed.

When the supply pressure falls below the minimum at which the appliance was designed to operate, the input, and hence the output, falls off, pilots may cycle the burner and in severe cases the pilot will automatically keep the burner off due to a low pilot flame. If the real cause of the trouble is not determined, improper corrections will likely be made and will only lead to further service calls when pressures become normal.

The supply pressure at an appliance may be low because of low pressure in the street mains, or inadequate size of the gas service line or the gas lines within the building. It may also be due to obstructions in the gas service line or the gas lines within the building. The supply pressure at an appliance should be taken with the main burner on and also with the main burner off. If the difference in pressure under the two conditions is greater than 0.5 in., the gas service or the lines within the building are too small or are obstructed.

IMPORTANT tool for the serviceman is the U-gauge or U-tube manometer in checking gas pressures in trouble shooting and in setting gas input. *Photo courtesy F. W. Dwyer Mfg. Co.*

If the supply pressure becomes extremely high, the regulator outlet pressure will be considerably higher than that originally set.

In cases where the pilot connection is made ahead of the main gas pressure regulator and an adjustable pilot cock is used, if the pilot cock is adjusted during a period of normal or lower than normal pressure, blowing of the pilot flame will be encountered when the supply pressure is substantially increased.

Pressure is an important factor in the performance of pilot burners, main burners, and gas pressure regulators. When shooting trouble on these components it is very important to take pressure readings and make them a part of the record. This information should be passed on when consulting others in regard to the trouble.

Manifold pressure should be

(Concluded on next page)

STANDARDIZE ON HONEYWELL
FOR ALL YOUR
RESIDENTIAL AIR CONDITIONING
CONTROL NEEDS

Now, a new line of

Terminals, reset button and differential are together, needs access from only one side.

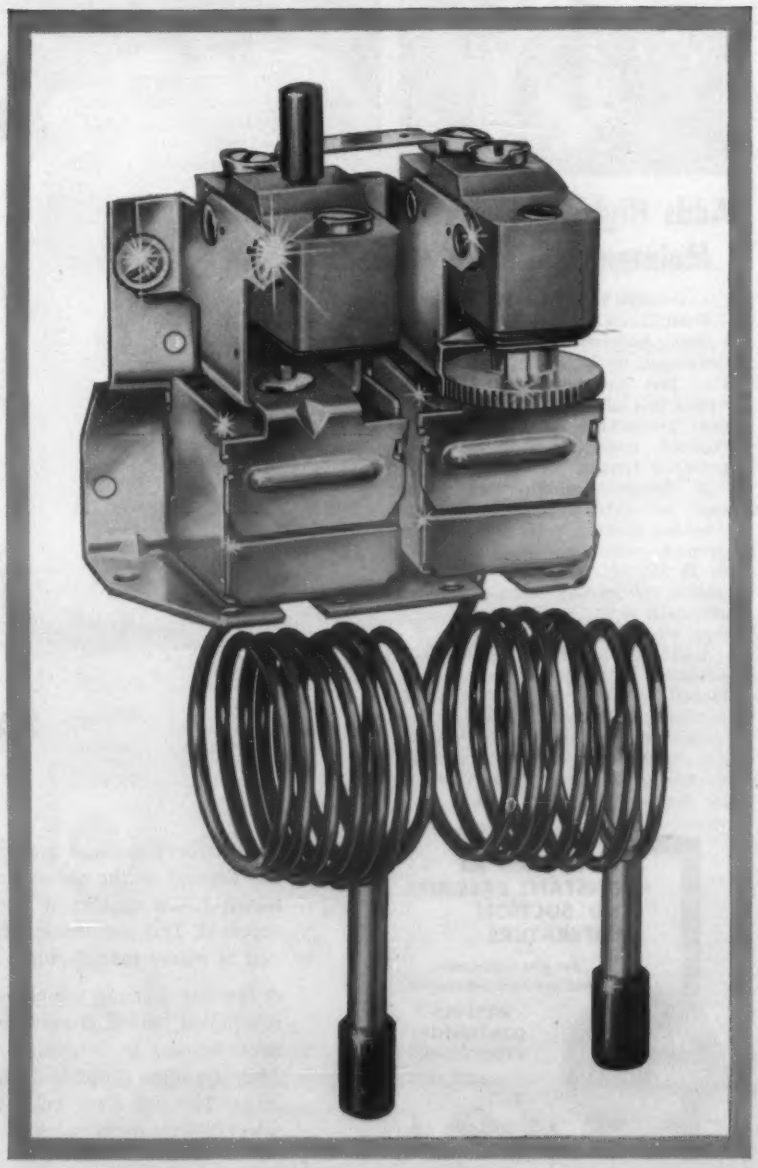
Trouble-free—famous, long-lasting MICRO SWITCH enclosed switch seals out dirt, lint and moisture.

No tweezer parts—a simple, direct-acting switch mechanism. No pivots, levers or springs.

Simple, differential adjustment—knurled differential adjustment knob can be operated by hand without use of tools.

Stainless-steel diaphragm — designed for precision action and lasting operation . . . unaffected by corrosive atmosphere.

One-piece capillary—eliminates the possibility of leaks or weak spots, normally a problem at soldered joints.



For more information about products advertised on this page use Information Center, page 20.

U-Gauge--

(Concluded from preceding page)

taken on main burner trouble and pilot pressure on pilot burner trouble. On gas pressure regulator trouble both the supply pressure and manifold pressure should be taken.

The place at which supply pressure is measured should be as near the heating equipment as a convenient place can be found. Where the pilot is connected ahead of the main gas pressure regulator, the pilot tubing can be disconnected and a tee can be temporarily connected in the line by the use of short pieces of rubber tubing and the U-gauge connected to the tee.

If the pilot cock is an adjustable one, the adjusting screw must be in the wide open position while measuring supply pressure. It should then be readjusted before leaving the job.

If no other place for taking supply pressure can be found, it can be measured at the gas range by removing one of the top burners and connecting the gauge to the spud. If the gas lines inside the building are of adequate size, this will give a reasonably good indication of the supply pressure. If the lines are under size it will not give a true picture of the supply pressure at the heating appliance.

It is hoped that the foregoing information will convince all servicemen that they should obtain and use a U-gauge in adjusting and shooting trouble on gas heating appliances.

Trane Covers 'Torri-vent'

LA CROSSE, Wis.—A special catalog (DS-327C) describing the company's line of "Torri-vent" heating and ventilating units for school applications is announced by The Trane Co. here.

BHC Appoints Owens To Form New Groups

NEW YORK CITY—Warren L. Owens has been appointed field director of the Better Heating-Cooling Council, it was announced by Franklin Greene, executive director.

Owens joined BHC in April, 1956, as public relations manager.

His new duties will involve the organization of community Better Heating-Cooling Councils in major cities throughout the country. The Cleveland Better Heating-Cooling Council was formed in October of last year. Several other cities, including Milwaukee and Philadelphia, are now organizing groups.

"The council is national spokesman for manufacturers, wholesalers, and contractors in the hydronics industry," it was pointed out.

Called 'High Quality, Low Cost'

American-Standard Offers Gas Furnace

ELYRIA, Ohio—Intending it to be a "high-quality, first-line, low-priced" unit, competitive with strip-down models, Air Conditioning Div., American Radiator & Standard Sanitary Corp. has produced a new gas-fired furnace.

Model GUB is claimed to be compact with modern, square-cut design, attractive, and designed for 1-in. clearance to combustible material. Jacket panels are rigidly reinforced to eliminate vibrations and noise of the unit which has sectional heat exchanger and built-in filter frame, according to the company. It can be tucked into a closet or alcove or installed in a finished recreation room, American-Standard noted.

Filter can be used at bottom or either side without using external frame, it was explained. The furnace employs a steel insert in the burner which is claimed to offer: simplicity; lower cost, easier cleaning; and even flame distribution across the complete width of the burner. The insert snaps out of the burner, can be wiped or scraped off, and snapped back in again.

Covered by American-Standards' 10-year warranty on the heating element, furnaces are "Installation Tested" before leaving the plant, the company said. This includes full cycle operation of blower and automatic controls and firing. Units are shipped completely factory assembled and wired ready to connect to utility lines.

GUB-75D has rated B.t.u. input of 75,000, measures 57 by 16 by 28 in.; GUB-100's B.t.u. rating is 100,000, measurements 57 by 18½ by 28 in.; GUB-100D, 100,000 and 57 by 18½ by 28 in.; GUB-125, 125,000 and 57 by 22½ by 28 in.

Burnham Buys Berger; To Introduce New Line

IRVINGTON, N. Y. — Burnham Corp. here has acquired all stock of Berger Furnace Corp. of Belle Vernon, Pa., it was announced by A. P. Weiss, vice president and secretary of Burnham.

Weiss was formerly president of Berger Furnace, which will now operate as a division of Burnham.

The acquisition "enables Burnham to serve the warm air heating and cooling industry with products of the same high quality as those the company manufactures for the hydronic (water heating and cooling) industry," the announcement said.

"A new line of warm air furnaces will soon be introduced by the Berger Furnace Div. The Berger plant is being retooled and new modern equipment is being installed to effect production at competitive prices on furnaces and 'Perim-A-Base,' the warm air radiant baseboard heating system which has been one of the outstanding Berger products.

Andrew H. Berger will continue as general sales manager of the division, with headquarters at Belle Vernon.

Addis Leads Detroit Warm Air Officers

DETROIT — Newly-elected officers of Detroit Warm Air Heating Association for 1958 are led by Anthony Addis, president.

William O. Smith is new vice president; Henry S. Craft, Jr., secretary; and Harold Bowie, treasurer.

Contractor-members of the board of directors include Earl McKenna, A. W. Keats, Anthony Miller, Edward Stenske, William VanDamme, and Albert Norris, retiring president. Perc Meyers and Roy Snypp are wholesaler and associate members, respectively.

pressure controls

HONEYWELL PRESSURETROL*—
COMPACT, DEPENDABLE—
11 MODELS TO CHOOSE FROM

This new Honeywell P432 high-low Pressuretrol is compact and functionally designed to meet the needs of today's neat, well integrated control panels.

You can choose the P432—or any of Honeywell's 11 Pressuretrol models to meet the demands of every type of residential air conditioning equipment and a wide range of other refrigeration applications. These Pressuretrols are available as separate high, separate low or combination high-low devices. Both high and low pressure controls can be ordered with manual reset. Low pressure controls can be specified with adjustable or fixed differential.

Honeywell Pressuretrols can be ordered as part of a panel or purchased separately.

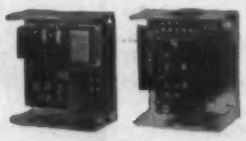
Now you can standardize on pressure controls designed specifically for packaged air conditioning units, made, matched and backed by Honeywell.

Get complete information on Honeywell's line of Pressuretrols and other air conditioning controls. Call your local Honeywell office or write Minneapolis-Honeywell, Dept. AN-3-51, Minneapolis 8, Minnesota.

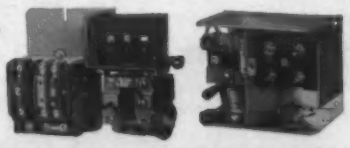
*Trademark

These control panels—for use with Honeywell Pressuretrols—
offer you maximum flexibility

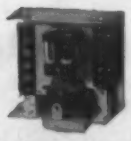
For self-contained units — WB212 panel with pressure control. For larger packaged units.



For attic type units—W429 panel for self-contained, add-on, one-stage cooling units. W430 panel for two-stage, self-contained cooling units (time delay available).



For remote condensing units—(These Honeywell Panels contain motor starter and pressure control). W431 panel for units up to 7½ tons. W435 panel for remote 2-ton and some 3-ton condensing units.



Evaporator Sequencing Panel—W226, designed for use with W431 or W435.

Honeywell

First in Controls

Air Distribution Requirements In Year-Round Air Conditioning

Putting Psychrometry To Work (1)

By Frank D. Klein, Chief Engineer, Governair Corp.

Reference has been made in the past instalments to "processes," citing them as heating, cooling, humidification, dehumidification, etc. Before getting involved in the solution of problems involving the processes themselves, it is imperative that "Primer" information regarding them as outlined in the very first part of our discussions and investigations, be expounded.

HEAT AND THE TRANSFER OF HEAT

Heat: Heat results from the vibration bombardment of the molecular structure of a substance under given conditions. It is a product of motion and the rate of this motion determines temperature. The foregoing is a generalized definitive explanation.

Sensible Heat: Sensible Heat is that heat which is perceptive to the senses. Furthermore it is the factor that determines Heat Transfer and in turn dictates the temperature of substances.

Latent Heat: Latent Heat is that heat at a predetermined pressure that can change the physical state of a substance.

Specific Heat: Specific Heat is the amount of heat in B.t.u. that must be added to or subtracted from a pound of a substance to bring about a change of 1° F. Tables for the Specific Heats of substances can be found in most reference books.

Total Heat: It is sufficient for future purposes to understand that Total Heat is the combination of both SENSIBLE and LATENT heats.

Heat may be transferred by (1) conduction, (2) radiation, (3) convection, and that these methods are what we as engineers are concerned with in the conditioning of air atmospheres; and factors with which we will have to contend and manipulate as well as compensate for.

CONDUCTION is accomplished in a number of ways, for example, by physical contact. Simply it is the passing on of heat from one substance to another.

RADIATION of heat is accomplished by the dispersal of heat waves into the air (or liquid) in the form of energy.

CONVECTION of heat in air atmospheres is accomplished by transporting heat from one point to another via another air atmosphere in mixture with it.

Heat transfer rarely takes place in conditioning air atmospheres by one method of transfer alone. For instance, a Unit Heater's heat exchanger is heated by the direct gas flame, air passed over its surface by a blower accepts the heat from the exchanger, and the mixture of air is discharged to further mix with the air of the space into which it is being discharged.

With this preliminary explanation, the following are typical examples in calculating psychrometrically some problems in the heating of air atmospheres, such as in warm air heating.

To heat a space with warm air, it is necessary to heat the air to be mixed with that of the space to a higher temperature than that of the space air. Thus as the higher heated air mixes with that of the space it gives up its higher heat and cools down to that of the space air. The amount of heat given up can either be greater or lesser than the heat being lost through one reason or another of the space.

It is the object of heating, therefore, to surrender sufficient heat to the space to offset the heat loss. If this is accomplished the heat delivered to the space and the heat lost from the space are in equilibrium. Formulaewise this accomplishment is explained:

$$Hs = 0.24WR$$

Hs in this case is equivalent to the change in sensible heat content of the air supply in B.t.u. per hour.

W in this case is equivalent to the weight of air delivered to the space in pounds per hour.

R in this case is equivalent to the Dry Bulb Temperature change of the air supplied to the space.

Weight of air as we have previously discussed is an unfamiliar expression-term to use in connection with air quantities, thus in order to sensibly use the above formulae we must convert weight to volume. The volume factor to use is 13.34 cu. ft./lb. of Standard Air. Thus substitute the weight derived in the above formulae for Volume as follows, with 60Q equivalent to the CFH (cubic feet per hour) delivered to the space.

We find that referring to various available reference tables in ASH & AE Guide or other similar sources that One Pound of Standard Air (or see Instalment 2) is equivalent to 13.34 cu. ft. Therefore, to determine the weight delivered we merely have to divide 60Q by this equivalent factor to obtain the weight or Q being delivered.

Example:

$$W = \frac{60}{13.34} Q$$

Therefore

$$W = 4.5Q$$

Thus if we have a problem in which we have a known volume of air being delivered to the space we can determine the pounds of air being delivered per hour, or to carry it further by division, per minute.

If we have a warm air furnace capable of delivering let us say 800 c.f.m. at 100,000 B.t.u. input we can: (1) eliminate "W" entirely and use the 4.5Q equivalent and formulate as follows:

Example:

4.5 x 800 approx. 3,600 lbs./hr.

Conversely, if we know the number of pounds being delivered to a space we merely reverse the order of the formulation.

Under the formulae explaining heat-loss heat-supply equilibrium that "Hs" was the factor equivalent to the change in sensible heat content of the air supply to the space in B.t.u. per hour.

Furthermore we learn that the equilibrium was arrived at through the formulae:

$$Hs = 0.24WR$$

Based on this then let us take an example to solve.

Example:

First: We now have 4.5 substituting for "W."

Second: We have Q representing the volume of air delivered in Cubic Feet per Minute (CFM).

Result: The previous formulae above now becomes:

$Hs = 0.24 \times 4.5 \times Q \times R.$

Hs then becomes a Factor of 1.1QR.

Third: How much heating can an air supply of 800 c.f.m. provide if its initial temperature is 115° F. as discharged into the space and the space is to be kept at 75° F.

Solution:

$R = 115° - 75° = 40°$

$Hs = 1.1QR$

$1.1 \times 800 \times 40 = 35{,}200$ B.t.u. per hr. that can be furnished by the air supply.

(To Be Continued)

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WRITE DEPT. A, for complete information.

For more information about products advertised on this page use Information Center, page 20.

California Graduate Apprentices--

(Concluded from Page 1, Col. 4)

ness for themselves.

Over 83% of this group of former apprentices indicated their experience proved one of the main benefits of apprenticeship is steadier employment.

This was borne out by the figures on time lost during 1955. Eighty-three per cent reported no time lost, and less than 3% lost over three weeks.

Would Recommend Apprenticeship to Young

The great majority of this group noted they would recommend apprenticeship to young men because they felt it offered job security. This feeling was supported by the facts. Over 30% of the 1950 class of apprentices were still working for their original employer.

Over 20% have worked for only two employers, and over 13% for three. This is a remarkable record when it is realized a large portion of these are in the building trades.

In earnings, apprenticeship really pays off. Those surveyed earned considerably more than other workers in contract construction and manufacturing.

Average gross earnings of the group for the year 1955 was $5,888. Averages for the various trades surveyed ranged from a little less than $5,000 to almost $6,500.

'It's Like Having Money In the Bank'

These are averages. Many of these people earned well over $7,000 in 1955.

Hanna said it has often been remarked that learning a trade is like putting money in the bank. He pointed out this group who had completed apprenticeships in 1950 had average gross earnings in 1955 which were over $1,400 higher than the average for manufacturing workers in the San Francisco-Oakland area.

Almost 37% of the group studies started buying their homes while still serving their apprenticeship. By 1955 over 78% were either buying their homes or owned them.

Hanna said many of the employers answering the survey pointed out that the craftsman who has served a full apprenticeship is usually head and shoulders above those who have not.

There is still a critical shortage of skilled craftsmen in the rapidly expanding industries of California, Hanna said, and apprenticeship programs need to be stepped up.

The Div. of Apprenticeship Standards as of Aug. 31, 1957, had a total of 125,895 registered apprentice agreements in effect in California.

Campbell--

(Concluded from Page 1, Col. 3)

"The relationship between air conditioning and heating has become increasingly important, and it has become necessary to achieve better integration of the company's cooling and heating product lines," President Mark W. Cresap, Jr., said in announcing the appointment.

"The distribution structure of the Olsen company and the Air Conditioning Div. will remain unchanged," Cresap said. "Arrangements with distributors of the respective organizations will continue as in the past."

Campbell began his career in 1924 with Carrier Corp. and in 1946 became manager of the Jackson, Mich. plant of the Silent Automatic Div. of Timken-Detroit Axle Co.

From 1948 to 1953 he was vice president of manufacturing of Landers, Frary & Clark Co. at New Britain, Conn., then became manufacturing vice president of Affiliated Gas Equipment, Inc., Cleveland. Upon merger of A.G.E. with Carrier, Campbell was elected a vice president of Carrier and was appointed general manager of the Bryant Mfg. Co. Later he became president of Bryant Mfg. and also president of Bryant Mfg. Ltd., of Toronto, Ont.

Electricity as Heat Source Gains--

(Concluded from Page 1, Col. 5)

ing year-round applications, makes the heat pump ideal for all types of requirements," O'Neil stressed.

"In comparing operating costs, *all* annual expenditures applicable to heating and cooling systems must be taken into account. When this is done, multiple packaged air-to-air heat pump installations will show the best over-all annual operating costs in many areas," according to O'Neil.

"On larger systems, there are advantages to using an air-to-water heat pump," stated Robert G. Werden, general sales manager of Engineered Machinery Div. of York Corp. Werden described and showed examples of successful application of these larger units.

"Cleanliness, safety, flexibility, and almost complete lack of maintenance and service" are some of the advantages claimed for electric resistance heating by R. L. Boyd, commercial space heating division of Edwin L. Wiegand Co. Boyd and other speakers on resistance heating pointed out that this type of heating may be utilized in baseboards, ceiling or floor cables, fixed and mounted radiant panels.

Most heating jobs would require combinations of these methods, according to the speakers.

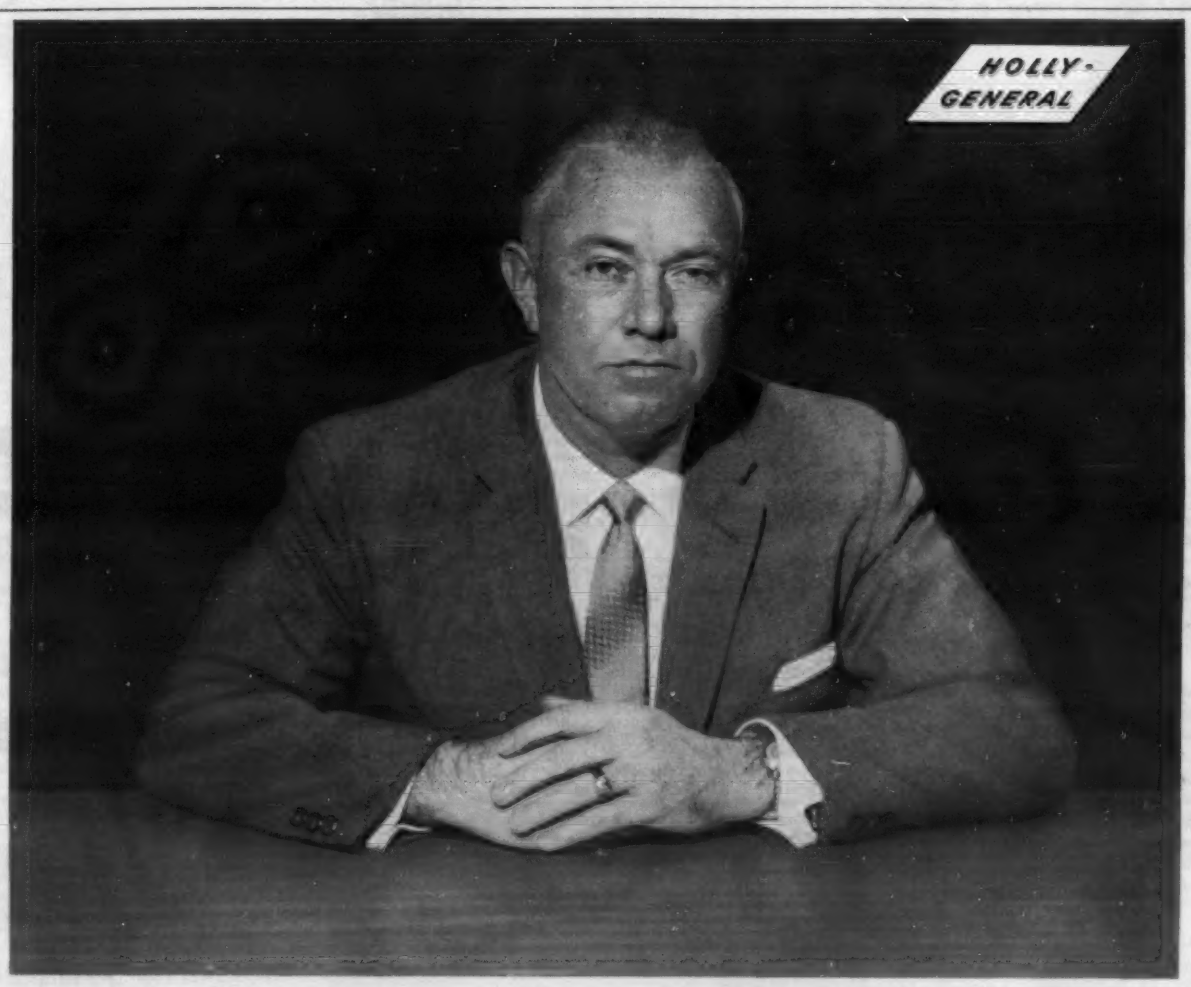
Considerable interest was manifested in the use of resistance heating in schools and institutions.

William Potter, institutional heating specialist of Edwin L. Wiegand Co., described several schools which are operating on all electric heat. He stressed that the number of such schools in the North is increasing rapidly.

Bruce King, engineer, Utica, Mich., gave an installation and cost breakdown of heating and ventilating two proposed identical schools—one with wet heat, the second with electric heat. According to King, the elimination of a boiler room allowed the addition of an additional classroom. The total installation cost per student in the two schools was $750 for wet heat and $705 for electric heat.

Although the net operating cost per student is estimated to be 7.7% higher for electric heat, King pointed out that it would take 34 years for the higher operating cost to use up the initial saving together with lower interest payments possible because of the lower original cost.

In later issues the NEWS will present in greater detail several of the talks given at the symposium.



I want to talk to you about your future

Your future as an air conditioner dealer is tied directly to the products you sell. If the line you offer your customers is ahead of the field, continues to lead in new features and give you and your customers better value—then your future is secure. That is why, no matter what brand of air conditioner you are now selling, I urge you to consider very carefully the many, many advantages in handling Holly Air Conditioners.

I've been in the field all my life. I've seen air conditioning grow from a curiosity to a major part of the American way of life. And in all these years, I have never seen any product that offers so many advantages to its dealers as the all new Holly line. And I have never seen any company that has so many new ideas and features in planning to stay ahead of the pack.

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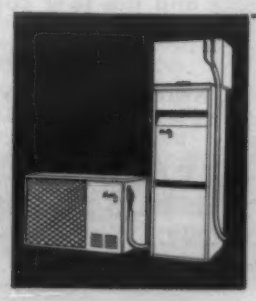
Richard Van Curen
Sales Manager
HOLLY-GENERAL MFG. COMPANY



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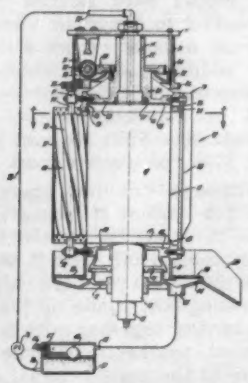
PATENTS

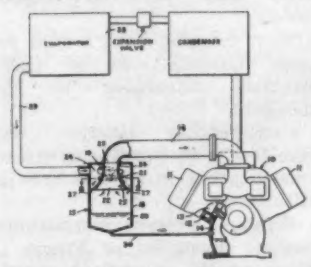
Week of Nov. 19

2,813,403. ICE MAKING MACHINE. Ernest A. Ostrom, Oakland, Calif.



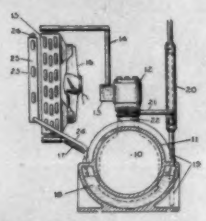
In an apparatus for manufacturing ice, a vertically disposed stationary drum, a rotatable flange portion covering the upper end of said drum, said flange portion being spaced from said drum to form a compartment therebetween, said flange terminating in a downwardly depending annular flange concentric to said drum, means to supply liquid to said compartment whereby said liquid may fill said compartment and flow downwardly over the surface of said drum in the form of a curtain, cut-off means carried by said depending flange in contact with said drum surface for progressively interrupting a portion of said curtain, means for rotating said rotatable flange portion in relation to said drum to move said curtain cut-off means around said drum. . . .

2,813,404. REFRIGERATION SYSTEM. Sylvan B. Hirsch, Longmeadow, Mass., assignor to Worthington Corp., Harrison, N. J.



1. In a refrigeration system, a compressor, a suction line connected to said compressor for flowing refrigerant gas therethrough to be compressed, a centrifugal separator to separate entrained liquid from refrigerant gas, said separator comprising a cylindrical vessel having a liquid compartment in the bottom thereof, a casing disposed in the upper portion of said vessel having a cylindrical upper portion and a bell-shaped lower portion in spaced relationship with the inner surface of said vessel to form a gas-liquid chamber therebetween, said vessel having a tangential inlet opening in the upper portion thereof to receive refrigerant gas and entrained liquid therethrough for centrifuging in said gas-liquid chamber. . . .

2,813,405. REFRIGERANT CONDENSING UNIT. Thore M. Elfving and Claes T. Elfving, San Mateo, Calif.

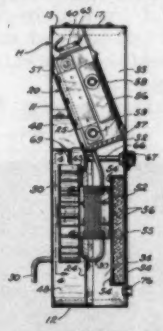


1. A refrigeration compressor comprising a driving motor, a compressor connected thereto, a housing for said driving motor and said compressor having a heat transferring wall, a jacket enclosing at least part of said wall and forming a receiver for gaseous and liquid refrigerant, a condenser disposed above said receiver, means for carrying gaseous refrigerant from said compressor to said condenser, a relatively large connecting pipe extending between the bottom of said condenser and said receiver above the liquid refrigerant therein, said pipe being of a size to conduct gaseous and liquid refrigerant simultaneously in opposite directions.

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D. C.

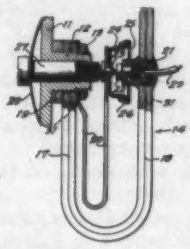
2,813,406. COMBINATION HEATER AND AIR-CONDITIONER. Samuel H. Smith, Rocky River, Ohio, assignor to Borg-Warner Corp., Chicago, Ill.



1. An air conditioning apparatus comprising a housing including side panels and a back panel, a first partition intermediate said side panels and extending therebetween for dividing the housing into an inner fan chamber and an outer chamber, said first partition comprising a vertically extending portion having an air inlet opening and a portion inclined toward and abutting said back panel and having an air outlet opening, a second partition extending between said side panels separating the air inlet and outlet openings and dividing the outer chamber into an air inlet chamber and a heat-exchanger chamber, said second partition abutting the inclined portion of said first partition and disposed substantially normal thereto, said second partion cooperating with the inclined portion of said first partition and said side panels to form a condensate receiving trough. . . .

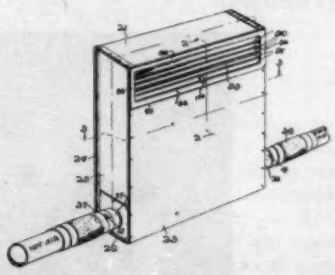
2,813,486. THERMOSTAT. William A. Ray, North Hollywood, and Wilbert C. Buescher, Alhambra, Calif., assignors to General Controls Co., Glendale, Calif.

1. In a thermostat: a support; an elongated bimetallic strip of U-shape mounted by one of its side arms on said support, said strip being arranged so that the other of its arms flexes in directions toward and away from said one of its arms in response to temperature variations, and to soundwave vibrations; a first element mounted on said support; and a second element carried by said other arm and engageable with said first element when that arm flexes in one direction; said strip having a slot extending lengthwise of both of its arms but



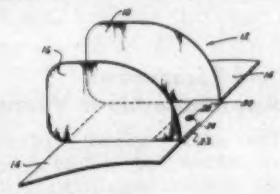
asymmetrically with respect to the axes thereof to provide unequal amounts of strip-material at opposite sides of said axes so that a lateral component of movement accompanies flexure of said other arm and a sliding action is imparted to said elements while the same are interengaged.

2,813,474. HIGH VELOCITY AIR DISTRIBUTION APPARATUS. Franz J. Kurth, Mamaroneck, N. Y., and Friedrich Honerkamp, West Hartford, Leonard R. Phillips, East Hartford, William J. Waeldner, Farmington, and Carl Olen Wood, West Harford, Conn., assignors to Anemostat Corp. of America., New York, N. Y.



1. Apparatus for an air distribution system comprising wall members forming a single plenum air mixing chamber, one of said wall members having an outlet opening, said wall members including a pair of oppositely facing walls, an opening in each of said oppositely facing walls presented as inlets for connections, respectively, to hot and cold air ducts, a pair of axial flow air valves, imperforate walls forming a pair of tubular means, each tubular means slidably supporting one of said valves in one of said inlets and for connecting one of the air ducts to the apparatus, a variable length extension member having each of its ends connected to one of said valves. . . .

2,813,475. DIFFUSION DEVICE. John B. Koch, Detroit, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp., New York, N. Y.



3. A diffusing device for use on the louver of an air moving unit comprising a single stamping; said stamping including a web portion positionable on one face of the louver, a tab formed on one edge of the web and bent out of the web portion plane so as to be positionable against the upstream edge of the louver, and a pair of spaced parallel blades projecting right angularly from the web portion and tab.

(To Be Continued)

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CONTROL VALVE development engineer; Graduate. Excellent opportunity with well established growth company. Take charge of all development and testing for refrigeration valves. This is a key position of management level. Chicago location. Replies confidential. BOX A5986, Air Conditioning & Refrigeration News.

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ESTABLISHED SERVICE company wishes to make connections with company or companies to handle warranty service on all types of refrigeration units, window units, freezers, etc., in Kansas City territory. A. F. GRAUBERGER, 1730 New Jersey, Kansas City 2, Kansas. Phone—AT. 1-1469.

BUY LADIES nylon hosiery wholesale. Finest quality. Write for price list. THE KERR CO., 2461-K North Clark, Chicago 14, Illinois.

For more information about products advertised on this page use Information Center, page 20.

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Cadillac auto air conditioner is the fourteenth make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtemp, Mobilette, Novi, Vornado, Polar-Temp, American Motors, and Buick.

Cadillac (3)

Cadillac Motor Car Co.
General Motors Corp.
Detroit 32, Mich.

SERVICE HINTS

Evacuating System

Cadillac recommends the use of a vacuum pump for evacuting a system following initial installation or repairs involving opening of the system.

The system should be pulled down to approximately 28 in. of vacuum and held at this point for 10 minutes. If 28 in. of vacuum cannot be obtained, the gauge or vacuum pump is faulty, or there is a leak in the system, which must be repaired.

After evacuating for 10 minutes at 28 in., the vacuum is broken with Refrigerant-12, and the system again evacuated to 28 in. for another 10 minutes. head pressure under 300 p.s.i.g. The system is now ready for charging.

Charging System

The Cadillac 1957 conditioner is charged through the low side in the usual manner.

Charge is 4 lbs. of Refrigerant-12 in both the front-end and trunk models.

Operating Pressures

Normal operating pressures and temperatures of 1957 Cadillac units are listed in the accompanying tables. Note that one table gives data for the front-end system; the other table applies to 1957 trunk systems.

In using these tables to check the performance of the 1957 units, a gauge manifold must be connected to the system, of course, the hood must be closed as much as possible, and hood openings must be covered with a cloth to prevent hot air from engine compartment entering the cowl air intake grille (on front-end systems).

The cable adjustment at the by-pass valve should be checked to assure full travel of the valve operating lever.

Engine should be started and operated at 2,000 r.p.m. Both air conditioner control levers should be in full left position. The car windows should be fully open. It may be necessary to place an auxiliary fan in front of the radiator grille to hold head pressure under 300 p.s.i.g.

After the system has been operated at least five minutes to stabilize engine temperature and gauge readings, pressures and temperatures may be noted.

Inlet and discharge air temperatures are determined by holding the bulb of an accurate thermometer in the air stream without allowing the bulb to touch any part of the car. Reading of discharge air on front-end systems is taken at upper center outlet on dash.

(To Be Continued)

Operating Temperatures and Pressures For 1957 Cadillac Front-End Units

Cowl Inlet Air	Humidity	Discharge Air °F.	Suction Pressure	Head Pressure
70° F.	10%	34-36	31½-32½	155-165
	30%	36-38	30½-31½	175-185
	50%	39-41	29½-30½	195-205
	70%	41-43	28½-29½	220-230
	90%	43-46	28 -29	250-260
80° F.	10%	38-40	29½-30½	195-205
	30%	40-42	28½-29½	225-235
	50%	43-45	27½-28½	255-265
	70%	45-47	27½-28½	275-285
	90%	47-50	27 -28	280-290
90° F.	10%	40-42	28 -29	215-225
	30%	42-44	27½-28½	245-255
	50%	47-49	27 -28	295-305
	70%	54-56	27 -28	300+
	90%	59-64	27 -28	300+
100° F.	10%	47-49	27 -28	255-265
	30%	50-52	27 -28	295-305
	50%	54-56	27 -28	300+
	70%	58-60	27 -28	300+
	90%	62-65	27 -28	300+

Operating Temperatures and Pressures For 1957 Cadillac Trunk Units

Evaporator Return Air	Temperature and Humidity	Discharge Air °F.	Suction Pressure	Head Pressure
70° F.	10%	40-42	30.5-31.5	170-180
	30%	43-45	30 -31	185-195
	50%	46-48	29.5-30.5	200-210
	70%	51-53	28.5-29.5	215-225
	90%	55-57	27.5-28.5	240-250
80° F.	10%	43-45	29 -30	200-210
	30%	47-49	28.5-29.5	215-225
	50%	51-53	28 -29	235-245
	70%	56-58	27.5-28.5	250-260
	90%	61-63	27 -28	265-275
90° F.	10%	46-48	28 -29	230-240
	30%	51-53	27.5-28.5	245-255
	50%	57-59	27 -28	260-270
	70%	62-64	27 -28	275-285
	90%	67-69	27 -28	290-300
100° F.	10%	51-53	27 -28	255-265
	30%	57-59	27 -28	270-280
	50%	63-65	27 -28	285-295
	70%	69-71	27 -28	300+
	90%	75-77	27 -28	300+

A PUSH BUTTON THAT'S

EASIER TO WIRE!

CONTACT MECHANISM IS IN THE COVER!

New Bulletin 800 "Start-Stop" push button with attractive, molded cover

Here's the standard duty Bulletin 800 push button that cuts wiring time "in half." Remove the new wrap-around cover, and the terminals are completely exposed for fast, easy wiring. The maintenance free, double break, silver alloy contacts are in the cover . . . protected against careless wiring. Made with up to 3 buttons and with pilot light, or as a selector switch—which can be changed from 3-position to 2-position, or vice versa—in a matter of seconds.

Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.
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A-B QUALITY ALLEN-BRADLEY QUALITY MOTOR CONTROL

NEW ELECTRIC POWERED COLDMASTER DELIVERY TRUCK REFRIGERATION

Biggest step forward in delivery truck refrigeration in years!

New, unique design ALL-ELECTRIC system provides ABSOLUTE ULTIMATE IN DEPENDABILITY. Closest thing to "SET IT AND FORGET IT" refrigeration ever achieved. Big, uniform capacity at lowest operating, maintenance cost.

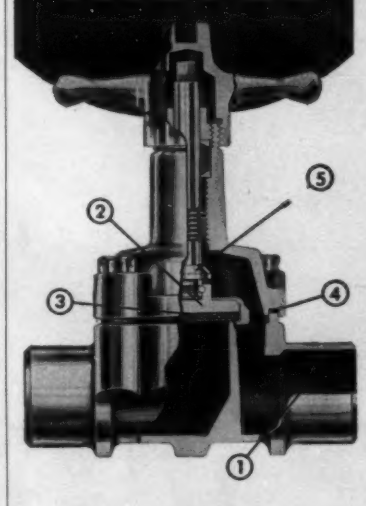
110-V standby. Nose, side, skirt mountings. Proved in use by nationally known firms.

DEALERS
Get in on big profits. Choice territories still open. Write for details — FREE CATALOG.

COLDMASTER TRUCK REFRIGERATION DIVISION
Construction Machinery Company
Waterloo, Iowa

● FULL FLOW
✻ SELF ADJUSTING
● POSITIVE SHUT-OFF
✻ LEAK-LOK BONNET SEAL
● REPACKS IN USE
✻ TEMPERATURE PROOF

KEROTEST PACKED GLOBE VALVES



"Packed" with quality and of rugged brass construction, these valves are ideal for refrigeration and air conditioning systems, oxygen (degreased), nitrogen, compressed air and liquified petroleum gases. Features: 1. Designed for full flow. 2. Floating disc for self-adjustment. 3. Quick seating disc for ease of operation. 4. Leakproof with exclusive gasketing. 5. Repacks under pressure with positive back seating. Maximum operating pressure 500 p.s.i.—maximum temperature 200° F. See your Kerotest wholesaler.

R12 Series ⅞"-2⅛" Forged Brass
R10 Series 2⅜"-4⅛" Cast Brass

KEROTEST

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A NEW REFRIGERANT CONDENSER

Typical Configuration Available

with these advantages:

- COST REDUCED 30% TO 40%
- CONDENSER WATER REDUCED 35%
- Refrigerant Charge Reduced
- Stabilizes Capillary Performance
- Smaller Cooling Towers Required
- Shipping Weight Reduced
- Many Shapes and Sizes Available (1 to 7½ tons)

USED BY MAJOR EQUIPMENT MANUFACTURERS
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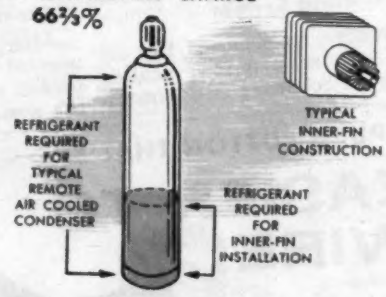
A REMOTE AIR COOLED CONDENSER THAT REQUIRES ONLY 1/3 OF THE REFRIGERANT CHARGE USED BY COMPETITIVE MODELS

AVERAGE SAVING ON REFRIGERANT CHARGE 66⅔%


REFRIGERANT REQUIRED FOR TYPICAL REMOTE AIR COOLED CONDENSER
TYPICAL INNER-FIN CONSTRUCTION
REFRIGERANT REQUIRED FOR INNER-FIN INSTALLATION

A RECENT 300 TON JOB SHOWED SAVINGS OF 1800 LBS. OF REFRIGERANT THROUGH USE OF THESE UNITS.

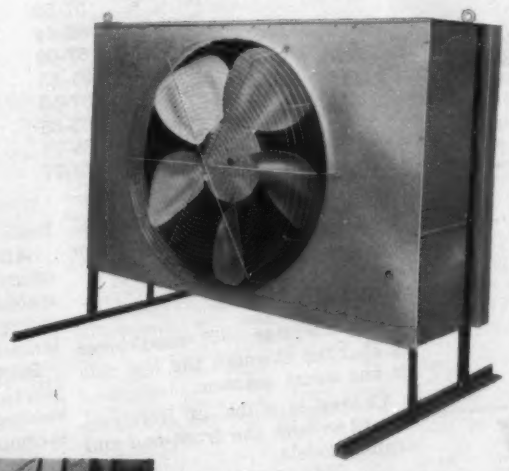
Yes, the Dunham-Bush 'BC' Remote Air Cooled Condensers with famous Inner-Fin construction mean savings of 67% in refrigerant charge. Additionally, they mean smaller receivers and minimum loss if the system charge is lost.

In these expertly planned units, the exclusive Inner-Fin construction diminishes the internal volume of the coil while increasing the heat transfer coefficient.

And higher heat transfer factors permit design of more compact units, saving valuable space in installation.

AS MUCH AS 53.5 TON CAPACITY IN ONE UNIT

The Dunham-Bush line of 'BC' Remote Air Cooled Condensers includes models in 13 sizes with capacities ranging from 2.2 tons to 53.5 tons, making possible use of a single unit for practically any job!



FOR ALL 'ROUND PROTECTION

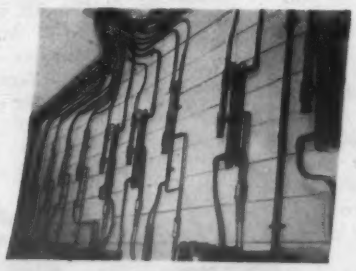
Plastic vinyl paint is applied to all ferrous parts of unit casing and structure in three stages:

PRIMER—a polyvinyl plastic combined with zinc chromate.

INTERMEDIATE—a vinyl resin with high lead content.

FINISH—hard grey, all weather resistant plastic vinyl.

All interior surfaces of the unit casing are given an extra finish coat of plastic vinyl.



AND FOR MAINTAINING SATISFACTORY HEAD PRESSURES

at all ambients, Dunham-Bush engineers offer the 'PS' Pressure Stabilizer.

'PS' units can be mounted indoors near the compressor, facilitating the making of necessary adjustments. They are thoroughly factory tested and assembled, and require connection only to the refrigerant liquid and discharge lines. No extra piping or special loops required. Regulating valve gives smooth pressure control and eliminates wide pressure fluctuations inherent in other head control systems.

The name Dunham-Bush is synonymous with efficient, satisfactory service for all types of pressure and temperature conditions. For technical assistance, our engineering staff is at your service. For more information, contact us.

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